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ANNUAL REPORT  
OF THE  
STREET DEPARTMENT



OF THE  
CITY OF BOSTON.

1896.







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COUNCIL OF



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# ANNUAL REPORT

OF THE

# STREET DEPARTMENT

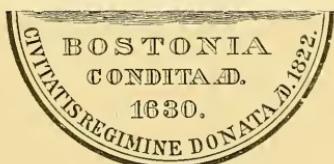
OF THE

*With Compliments of*

**Benj. W. Wells,**

*Superintendent of Streets.*

**PLEASE EXCHANGE.**



BOSTON:  
MUNICIPAL PRINTING OFFICE,  
1897.



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OF THE

# STREET DEPARTMENT

OF THE

## CITY OF BOSTON.

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HON. JOSIAH QUINCY,

*Mayor of the City of Boston :*

SIR: In compliance with the Revised Ordinances, the annual report of the operations and expenses of the Street Department for the year 1896 is herewith respectfully submitted.

#### ORGANIZATION.

The work of the department during the past year has been carried on under the same organization that was effected when the consolidated department was created in 1891 and as amended in 1895, the several divisions of the department being as follows:

Central Office.

Boston and Cambridge Bridges.

Bridge Division.

Ferry Division.

Paving Division.

Sanitary Division.

Sewer Division.

Street-Cleaning Division.

Street-Watering Division.

Each of the above divisions, with the exception of the Central Office and the Boston and Cambridge Bridges, is in charge of a Deputy Superintendent.

The Boston and Cambridge Bridges are managed by two commissioners, the Superintendent of Streets being the commissioner for the city of Boston, the other commissioner being appointed by the Mayor of the city of Cambridge.

The year 1896 has been a most successful one in the Street Department, inasmuch as in addition to the great amount of new construction accomplished, a large amount of most necessary work, which has been contemplated and recommended for years past, has been completed, or is under way.

More extensive study than is given under this résumé of the year's work, with detail of figures and expenditure, will be found in the division reports of the Deputy Superintendents.

#### MAINTENANCE.—APPROPRIATIONS AND EXPENDITURES.

	1891-92. 13 months.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97. 53 weeks.
Appropriations and transfers,	\$2,318,374 82	\$2,528,359 52	\$2,231,517 76	\$2,107,939 30	\$2,165,018 56	\$2,088,690 05
Expenditures . . .	2,299,621 33	2,487,095 87	2,174,095 35	2,038,855 91	2,140,177 63	2,134,944 49

The weekly pay-rolls of the department are made up to the close of work Thursdays, approved Fridays, and charged on the books of the City Treasurer Saturdays. Feb. 1, 1896, falling on a Saturday, one roll of the 1895 year was paid from the 1896 appropriation, thus making fifty-three payments. The amount of this roll was \$22,155.12.

The money assigned for Street Department work the past year was made available under the following appropriations:

*First.*—Maintenance: At the commencement of the financial year, February 1, the department estimates of the amounts necessary for the proper maintenance of the various divisions are submitted to His Honor the Mayor, who makes such recommendation as he may deem proper to the City Council. The appropriations passed for this purpose were as follows:

Central Office . . . . .	\$19,000 00
Bridge Division . . . . .	120,000 00
Cambridge and Boston Bridges . . . . .	13,000 00
Ferry Division . . . . .	218,000 00
Paving Division . . . . .	630,000 00
Sanitary Division . . . . .	435,000 00
Sewer Division . . . . .	280,000 00
Street-Cleaning Division . . . . .	300,000 00
Street-Watering Division . . . . .	70,000 00
 Total . . . . .	 \$2,085,000 00

*Second.* — Special work done under loan appropriations for permanent improvements: There was made available from loan money, \$25,000 for new or reconstruction work in each of the twenty-five wards, Ward 23 receiving \$25,000 additional, or a total of \$650,000 for all.

In addition to the above amount, balances and orders passed during the year for special items amounted as follows:

Bridge Division . . . . .	\$55,543 86
Ferry Division . . . . .	742 94
Paving Division . . . . .	362,931 99
Sewer Division . . . . .	205,343 80
<hr/>	
Total . . . . .	\$624,562 59

*Third.* — In 1891 an Act was passed by the Legislature entitled, "An Act Relating to the Location, Laying Out, and Construction of Highways in the City of Boston." (Chap. 323.) From this fund new streets and sewers assessable on the abutting property are built. The amount expended the past year was:

Streets . . . . .	\$174,961 88
Sewers . . . . .	435,538 20
Total . . . . .	\$610,500 08

*Fourth.* — In 1895 an Act was passed by the Legislature, entitled, "An Act to Provide for the Laying Out and Construction of Certain Highways in the City of Boston" (commonly known as the Boulevard Act). (Chap. 334.) The amount expended this year was as follows:

Streets . . . . .	\$703,118 93
Sewers . . . . .	143,759 89
Total . . . . .	\$846,878 82

*Fifth.*—In 1896 an Act was passed by the Legislature, entitled, “An Act Relative to Stony brook in the city of Boston.” (Chap. 530.) \$500,000. The amount expended this year was \$98,150.74.

*Sixth.*—In 1895 an Act was passed by the Legislature, entitled, “An Act Relative to the Establishment of a New Ferry Landing in the city of Boston.” (Chap. 435.) \$500,000. The amount expended this year was \$21,961.61.

*Seventh.*—In 1896 an Act was passed by the Legislature, entitled, “An Act to Provide for a Union Station for Passengers on Railroads entering the southerly part of the city of Boston.” (Chap. 516.) The amount expended this year was as follows:

Sewers . . . . .	\$1,847 02
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Thus the expenditures under the several appropriations of the year 1896 were as follows:

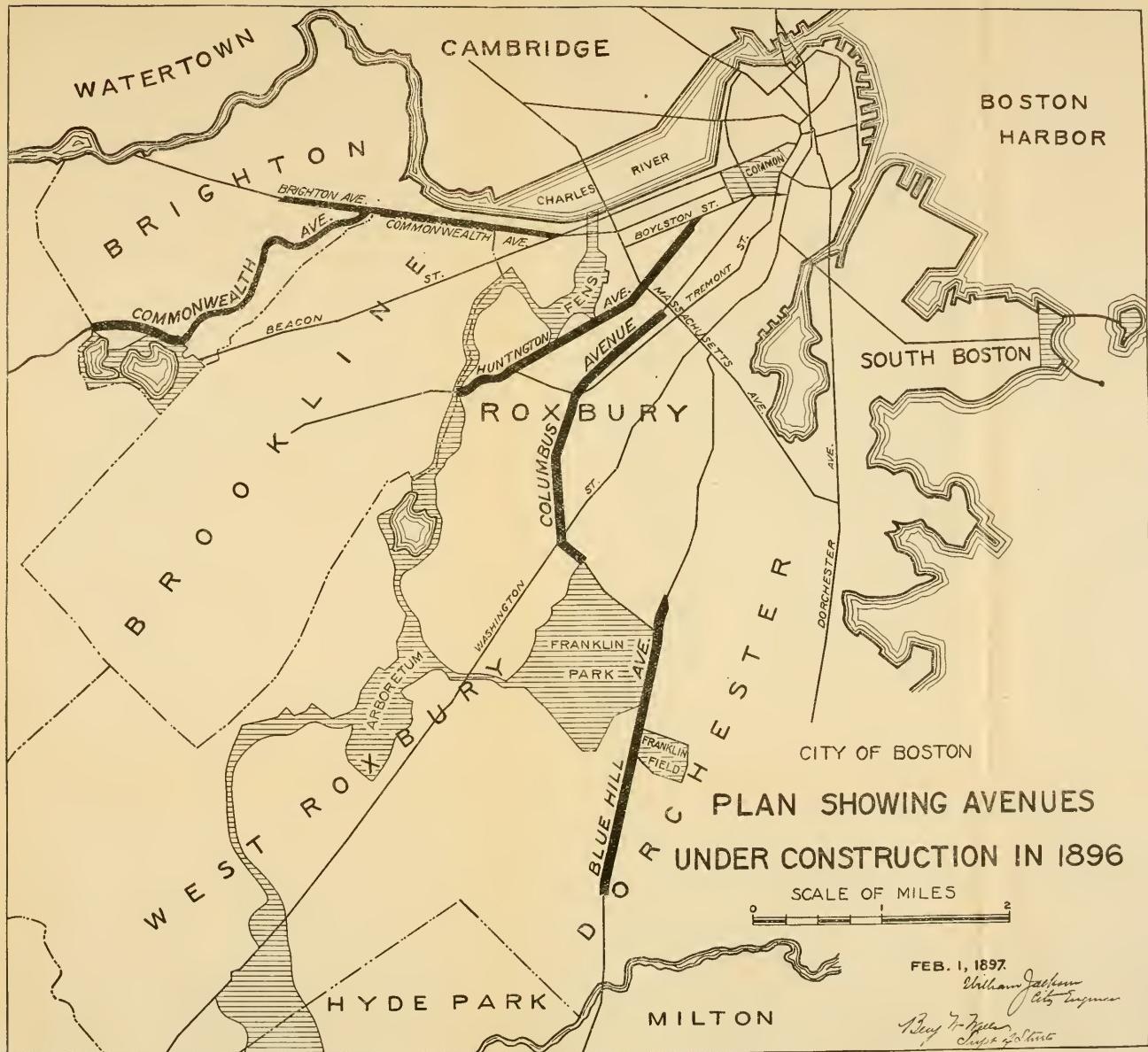
Maintenance . . . . .	\$2,134,944 49
Street Improvements (by wards) . . . . .	677,900 11
Bridge, specials . . . . .	27,172 77
Ferry, specials . . . . .	742 94
Paving, specials . . . . .	199,195 79
Sewer, specials . . . . .	70,084 42
Laying Out and Construction of Highways . . .	610,500 08
Blue Hill and Other Avenues (Boulevard Act) . . . . .	846,878 82
Stony Brook Improvement . . . . .	98,150 74
New Ferry Landing . . . . .	21,961 61
South Union Station . . . . .	1,847 02
Total . . . . .	<hr/> \$4,689,378 79

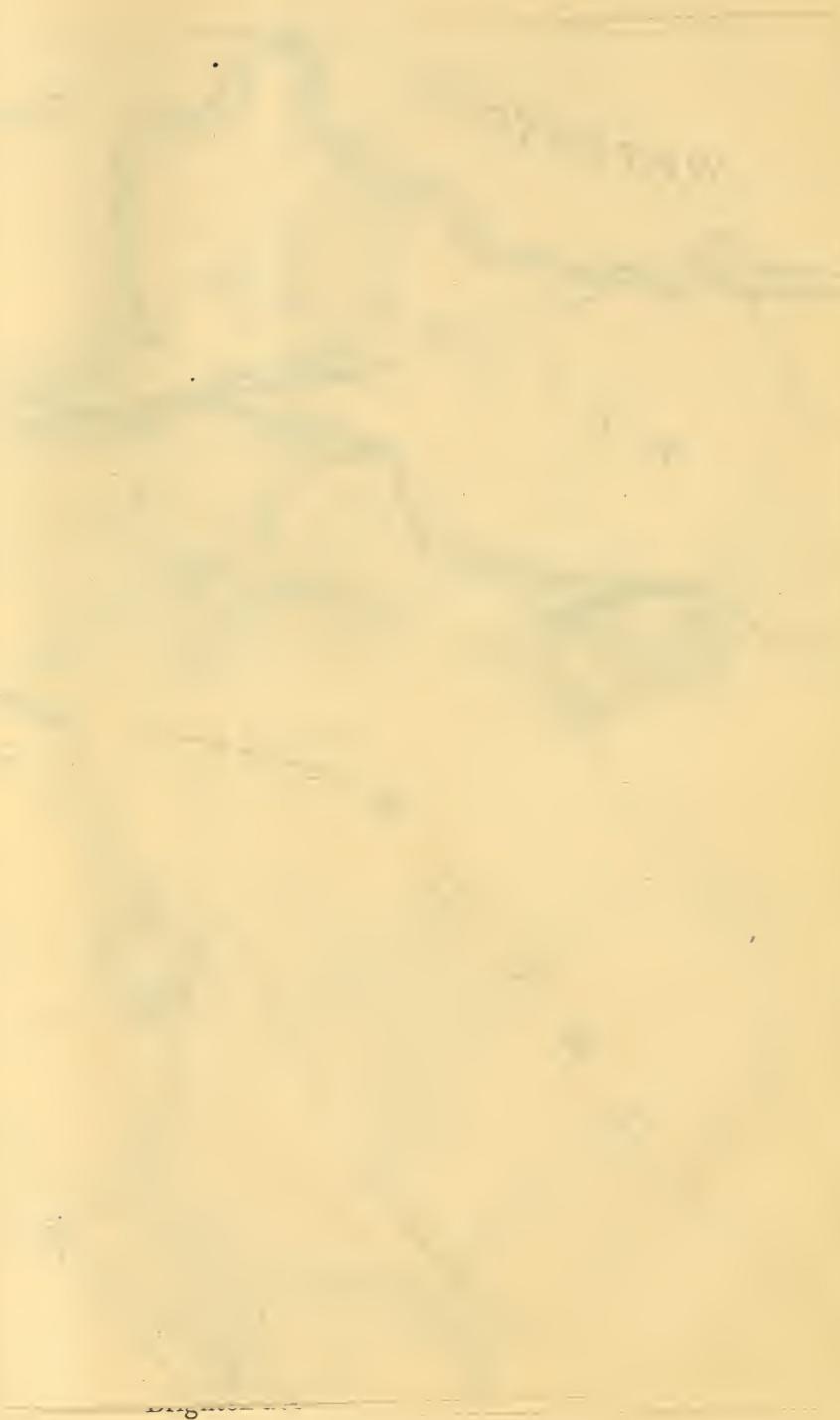
#### CONSTRUCTION WORK, STREETS AND AVENUES UNDER “323” ACT.

The following streets and avenues were under construction during the year, and have been wholly or partially completed at an expenditure of \$230,194.03 for both sewer and surface work:

Abbotsford street.  
Audubon road.  
Bay State road.  
Boylston street.  
Brighton avenue.

Chamberlain street.  
Clinton street.  
Fenelon street.  
Fullerton street  
Gaylord street.





Geneva avenue.	Norway street.
Granby street.	Parker street.
Greenbrier street	Peterborough street.
Harvard avenue.	Ruggles street.
Harvard street.	Sherborn street.
Ivy street.	St. Alphonsus street.
Josephine street.	St. Germain street.
Kenmore street.	Turner street.
Lauriat avenue.	Vancouver street.
Morse street.	Wilder street.
Newbury street.	Wolcott street.

The work on the Boulevards commenced in 1895, has made great progress this year. The original appropriation for the reconstruction and building of the four avenues, including land damages, was \$2,800,000. The four avenues are:

*First: Blue Hill avenue.*

*Second: Columbus avenue.*

*Third: Commonwealth avenue.*

*Fourth: Huntington avenue.*

In addition, Brighton avenue was ordered and constructed under a special Act relating to the "Laying Out and Construction of Highways Act."

The general design of the five radial avenues in their relation to city parks and other points of interest to the public is shown roughly in the accompanying sketch, the new portions being marked in heavy black lines.

#### BLUE HILL AVENUE.

From the diagram it will be seen that Blue Hill avenue will form the most direct means of connection with Milton and the Blue Hills Reservation of the Metropolitan Park Commission, and, passing as it does the whole length of Franklin Park and Field, and through a section noted for its beautiful landscape views, it will be valued not only as a driveway for pleasure carriages, but as a most desirable residential street convenient for electrical transit. One roadway of this avenue in Telford macadam was built this year, and the other will be completed during the working season of 1897 to Walk Hill street. The remaining part from Walk Hill street to Mattapan, involving the abolishment of the grade crossing of the New York, New Haven & Hartford Railroad, should be ordered as soon as possible.

### COLUMBUS AVENUE.

From Massachusetts avenue to within sixty feet north of Station street has been constructed as an asphalt roadway fifty-four feet in width from curb to curb, including a double track with full grooved rails sixty feet long, flush in guard and tread, with the asphalt surface. These rails were especially designed and constructed for this avenue, and are put to trial for the first time, and, if successful, will probably become the standard rail for asphalt streets. It is the only sample of this style of construction in the city.

From Massachusetts avenue to Terry street is laid with Trinidad Lake asphalt. From Terry street to sixty feet north of Station street with Sicilian Rock asphalt.

The section from Roxbury Crossing to Ritchie street is at present occupied with Stony brook construction, and its paved surface will be laid as soon as this and other underground work are completed.

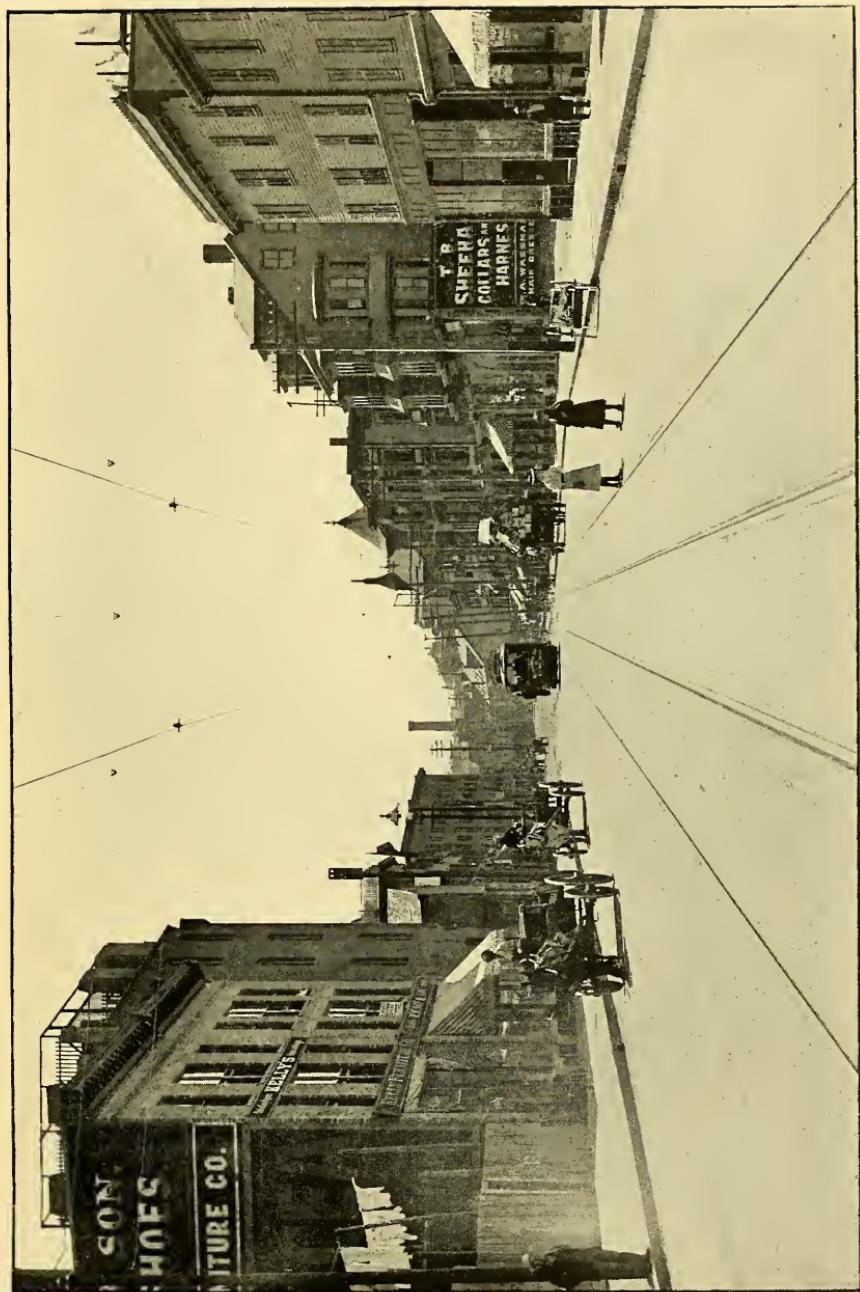
In the section from Ritchie street to West Walnut park the sewer is nearly finished, and this section will be ready in the early summer for contract for the street surface.

The last section from West Walnut park to Walnut avenue is built of Telford macadam with granite edgestone and brick sidewalks. This section opens into Franklin Park, making Columbus avenue the most direct line to the Park from the city proper.

### COMMONWEALTH-AVENUE EXTENSION.

A portion of the avenue, known as Commonwealth-avenue extension, built under the "Boulevard" Act, extending from Chestnut Hill avenue to the Newton line, was partly sewered last year. This year the sewers have been completed, water mains laid, and the construction of the roadway with Telford macadam finished.

The width is one hundred and twenty feet and a double roadway of twelve-inch Telford macadam has been constructed during the past year. This extension of the avenue forms a connecting link between Boston and Newton, so that a continuous drive is possible without leaving the boulevard from the Public Garden to the Charles river at Auburndale, or a distance of 11.14 miles. Their total length in Boston is 8.06 miles, and the total cost, exclusive of land damages, will be within the total appropriations therefor. The details of construction and of items of interest relating to the above-named boulevards may be gathered from the City Engineer's report.



COLUMBUS AVENUE—LOOKING SOUTHWEST FROM PRENTISS STREET TOWARD ROXBURY CROSSING,  
SHOWING ASPHALT SURFACE AND CAR TRACKS.



## COMMONWEALTH AVENUE.

That portion of Commonwealth avenue laid out under the general law still remains to be finished.

Much work has been done this year, the most important of which was the building of the bridge over tracks of the Boston & Albany Railroad at Cottage Farm, a most substantial structure of stone and iron, with an asphalt surface.

Much work has also been done on the sidewalks and roadways, and the widening at a point beyond Washington street carried on.

There remains a considerable further amount of work to be done; the section from Warren to Chestnut Hill avenues, to cost exclusive of sewers \$167,000, although one roadway of the entire avenue is now in a safe and passable condition.

The construction of this avenue depends on an annual appropriation, and the expenditure to date is within the engineer's estimate.

The speedway, planned in 1895, to be built on the southerly side of Commonwealth avenue, starting at Brighton avenue and extending to Cottage-Farm bridge, a distance of five-eights of a mile, was constructed this year. Great care was taken, and the best advice of race-track experts solicited, and under their direction a loam track was constructed. As this matter of speedways has been agitated somewhat the past year, I append herewith a letter written to His Honor the Mayor, covering the views of this department:

STREET DEPARTMENT, CITY HALL,  
BOSTON, Dec. 9, 1896.

HON. JOSIAH QUINCY, *Mayor*:

SIR: I herewith inclose, without the approval of this department, the request of the Board of Aldermen and citizens' petition for the construction of a speedway on Blue Hill avenue, between Morton street and Talbot avenue.

I am a firm believer in the establishment of a speedway, and this year built such a road at Brighton, and this would have been more successful had the lay of the land been more favorable. The drawbacks discovered on this location are the same that would exist on Blue Hill avenue. The proper construction of a speedway calls for a deep loam road construction similar to a race track. On this there can be no crosswalks, and cross streets cause a depression, at the point of intersection, and the crossing of teams makes speeding dangerous.

The location should also be such that the speedway could be closed within certain hours, so that heavy travel could be kept out without a police watch such as has been necessary on Commonwealth avenue. The part of Blue Hill avenue asked for this purpose has running into it cross streets. Residents on these streets and teams entering for the delivery of ice, coal and other purposes must cross or follow

the speedway. Also, to take the cars which run through the central space of the avenue, people must cross without crosswalks ; and the nature of a loam road makes this very muddy in wet weather.

The building up in the near future of the land bordering on the speedway would ruin the road during operations ; and thereafter, the householders might properly object to restrictions as to driving, or standing a team opposite their houses, which must be enforced if the object of the drive is to be maintained. The very considerable expense attending the construction of a road of this kind should prevent the location of a speedway in any but a fairly permanent locality. In regard to the Blue Hill location the avenue was laid out under chapter 323 of the Acts of 1891 and amendments thereto, and a definite construction was ordered by the Street Commissioners. One roadway has been completed, and the other let by contract, in accordance with this order. Inasmuch as Blue Hill avenue is a through turnpike road, had a speedway been contemplated, the lay out would have been different.

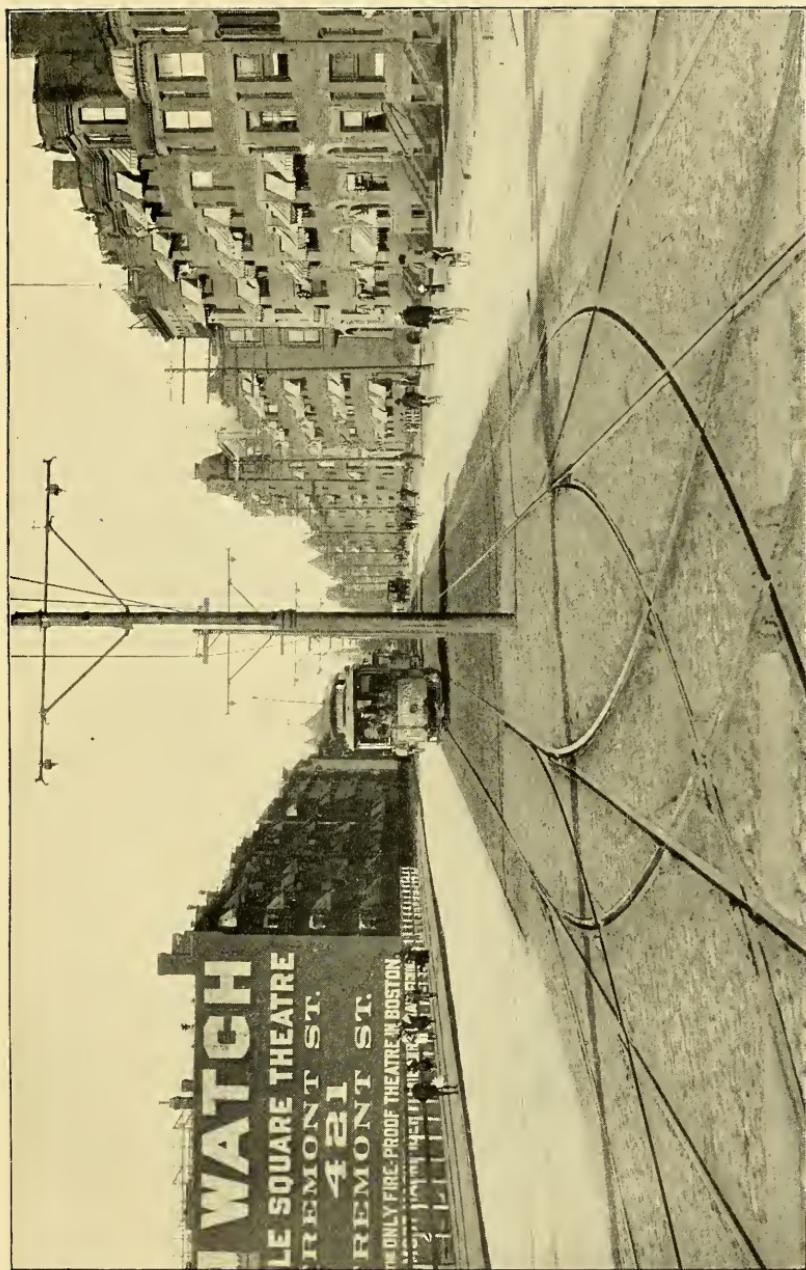
On the Brighton speedway I have had located an inspector for the sole purpose of determining its value to the horsemen and lovers of fast driving, and his reports show that the idea is a most excellent one ; but experience there proves my argument that a straight stretch of land should be found along the line of the parkways, on the river front, or in a reserved central space on some broad avenue, where travel of all kinds except the light and fast could be kept off without detriment to the surrounding property or an unnecessary expense to the police appropriation.

Respectfully submitted,  
BENJ. W. WELLS,  
*Superintendent of Streets.*

As an outcome of a meeting held at this office of some of the fast horse owners in Boston, a committee was appointed, and the matter laid before the Legislative Committee on Metropolitan Affairs, requesting that an appropriation be provided by the Metropolitan Park Commissioners for the building of a speedway, as suggested in this letter.

#### HUNTINGTON AVENUE.

From Copley square to Francis street has been entirely reconstructed the past year, widened to one hundred feet, with a central reserved space for the West End Street Railway tracks twenty-five feet wide ; and from Francis street to the Brookline line it is finished as a single roadway fifty-four feet in width. All of Telford macadam except the part between the Boston & Albany Railroad bridge and Gainsborough street, which is laid in Sicilian Rock asphalt. This avenue is a direct thoroughfare to Brookline and the Back Bay parks, and is especially convenient for access to the Mechanics Building, used as it is for exhibition purposes that requires the transportation of bulky merchandise.



HUNTINGTON AVENUE AT MASSACHUSETTS AVENUE—SHOWING ASPHALT SURFACE  
AND RESERVED SPACE.



## BRIGHTON AVENUE.

The avenue extends from Commonwealth avenue to Union square, and is 100 feet wide with a twenty-five foot reserved space for the tracks of the West End Street Railway Company. It is built of Telford macadam, and also has two roadways. This should be extended in a straight line to the Watertown bridge, and would then become a popular drive to Waltham.

These beautiful avenues, costing large sums of money, are bound to be greatly appreciated, and the increase in land values and the improvement in property will more than repay for the outlay.

Vast areas of land, formerly of little value, are now made available by the introduction through these new avenues of sewers, water, gas, electric light, and electric cars.

## CLINTON-STREET WIDENING.

Another improvement, which will bring back many fold its cost, is the widening of Clinton street at its junction with Commercial street. This narrow street was like the neck of a bottle. At all hours of the day in this busy locality might be found delays and blockades of teams, extending many squares, from this cause. The widening at this point has fully overcome the difficulty, and is a great relief.

## PAVING DIVISION.

## APPROPRIATION.

Maintenance.	Specials.
\$630,000 00	\$1,198,127 93

## EXPENDITURE.

Maintenance.	Specials.
\$628,675 46	\$877,095 90

For expenditures under Laying Out and Construction of Highways and Blue Hill and Other Avenues, see page 3.

This division has charge of the maintenance and reconstruction of about four hundred and fifty-nine (459) miles of streets.

These streets include all the different kinds of construction, from the simple gravel road for light suburban travel to the heavy paved streets with concrete base.

The immense quantities of Telford and cracked stone to be required by the city in road building operations of the year, and to be furnished by the Paving Division, was a subject of careful study and preparation during the winter months. The various crushers were inspected, and many changes found necessary, both as regards the economy of operation and in the line of improvement in the quality of the output. Screens were changed, platforms raised, boilers and machinery overhauled, and every effort made to improve the quality of stone used on the streets.

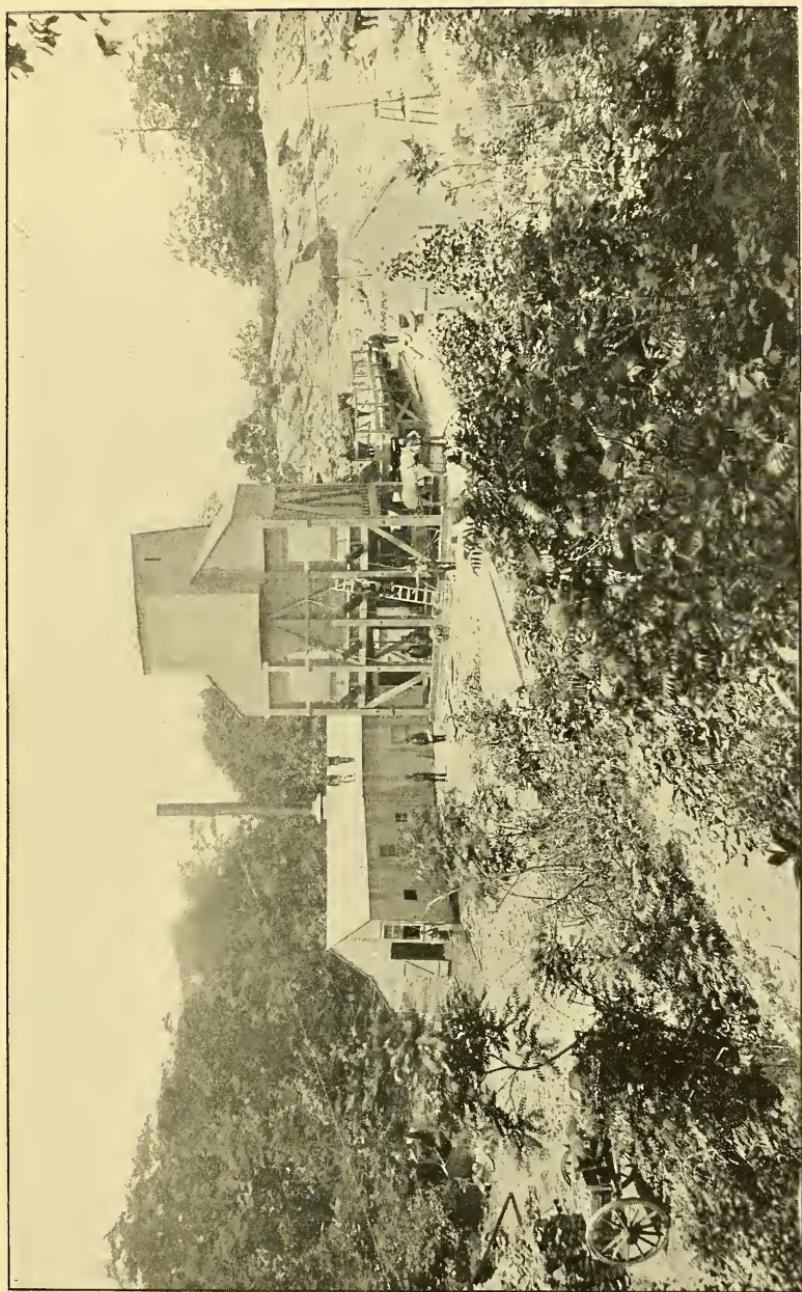
A new crushing plant was built at Bleiler's Ledge on Heath street. The stone in this ledge has been known for many years for its hardness. A portion of this plant was brought from Kenney's Ledge where a double crusher had been set up in 1895. The poor quality of the stone in that ledge and the small quantity remaining made it advisable not to continue the operation of a large plant at that point.

To replace the Roslindale crusher, which was a small, crude, flat screen affair, supplied with stone from various unreliable sources, a model plant was erected on Centre street, West Roxbury, in a large quarry of most excellent stone, adjacent to an extensive territory needing in the near future a great supply of cracked stone. This section of the city has been growing very rapidly, and street improvement has not kept pace with development of property, owing to the lack of suitable road stock in the neighborhood for the avenues, new streets, street improvements, and repairs.

#### CRACKED STONE, BALLAST OR TELFORD.

##### *Output of stone from city crushers.*

	Crushed Stone. Tons.	Telford. Tons.
Bleiler's ledge.....	25,638	925
Centre street crusher.....	9,777	
Chestnut Hill avenue crusher.....	17,757	
Codman street ledge.....	12,668	291
Commonwealth avenue ledge.....	16,134	10,217
Dimock street crusher.....	36,899	
Kenney street ledge.....	19,505	1,377
Rosseter street ledge.....	19,016	3,544
Totals.....	157,394	16,354



HEATH STREET CRUSHER, BLEILERS LEDGE, ROXBURY.



Greater care was exercised in the care and cleaning of the streets covered by the paving division and a special patrol service for the collection of waste paper, loose stones, etc., extended to the sections of the city not covered by the street-cleaning division.

This division also has charge of the placing of street signs. The work this year was unusually extensive owing to the change in the ward lines, making necessary many new signs.

#### PERMITS.

Under the law and by ordinance, permits, allowing certain work to be done on or within the streets, must be obtained from the Superintendent of Streets. This requires the maintenance of a special force by the Paving Division for the purpose of issuing and keeping track of the permits, and also requires the services of a large number of inspectors whose duty it is to see that the conditions of the permits are not violated. No charge has heretofore been made.

Commencing Jan. 1, 1897, regulations for payment were adopted, and the following circular issued :

#### CITY OF BOSTON

#### STREET DEPARTMENT.

##### *Notice to Corporations and Contractors.*

On and after Jan. 1, 1897, a charge will be made for each permit issued from the Permit Office of this Department in accordance with the following schedule: —

*Class A, \$1.00 each.*

Permits for the following purposes :

Ordinary excavations.

Laying drains.

Laying wires, conduits, and railroad tracks.

Occupying streets for erecting and repairing buildings, and other purposes connected with buildings, when they do not become the part of another permit.

Placing electric poles in the streets.

Placing coal holes and vaults under the sidewalks.

Moving buildings.

Feeding horses.

Selling fruit, etc., from buildings.

Occupying sidewalks for more than ten minutes for the purpose of loading and unloading goods, (yearly permit.)

Driving cattle.

Wearing advertisement coat and hat, (yearly permit.)

Making emergency openings.

*Class B, \$0.25 each.*

Permits for the following purposes :

- Raising and lowering goods into and from buildings.
  - Erecting signs.
  - Erecting and repairing awnings.
  - Selling from vehicles, pedlers, class 1.
  - Selling from receptacles, pedlers, class 2.
  - Selling from areas, pedlers, class 4.
  - Projecting electric lamps.
  - Distributing fine sand on pavements.
  - Occupying sidewalk and portion of street for cleaning snow from roofs of buildings, (yearly permit.)
  - Watering streets with watering carts.
- On extension of permits, there will be a charge of \$0.25 each.

BENJ. W. WELLS,

*Superintendent of Streets.*

This system has thus far worked well, and the city put in receipt of an estimated income of from twenty to thirty thousand dollars a year.

Even with the most rigid inspection, however, the annual loss to the city by the disturbance of the streets by the corporations amounts to many thousands of dollars, and I would recommend that the law be so amended as to require a deposit by the corporations of a sum sufficient to pay for the replacing of the streets in proper condition, and that the city undertake that work.

The enforcement of the ordinance requiring a permit to parties selling from area, window or sidewalk has led to better conditions, and is appreciated not only by the merchants but the public.

The following clause in their permits has been maintained and better results as regards the cleanliness of streets in certain localities brought about:

CITY OF BOSTON.

*Street Department Regulations.*

This permit will be granted only to persons who are tenants of the first story or basement of the buildings from which they sell, and who are tax-payers of the City of Boston, and upon the express condition that the person to whom it is issued shall keep the street, within fifty feet of his premises, free from all refuse paper and litter created by the sale or handling of his wares. This permit must be shown to police officers or any authorized person on application.

Failure to observe these regulations will be a sufficient cause for the revocation of this permit.

BENJ. W. WELLS,

*Superintendent of Streets of the City of Boston.*

The maintenance appropriation allowed for the Paving Division is out of proportion to the demands made upon it.

With the great increase of street mileage the past few years, the appropriation allowed for the maintenance has grown less, making it impossible to adopt a proper system whereby the streets might be kept in such constant repair that reconstruction would be required at less frequent intervals.

The need of a large outlay for repaving the business section of the city is most apparent. Other large cities, such as New York and Philadelphia, have in the past few years repaved immense areas of streets ruined by the process of placing underground wires, pipes, etc. A special loan of \$500,000, outside the debt limit, should be authorized by the Legislature for the purpose of putting the down-town pavements in a condition in accordance with the standard of a first-class city. The tendency in many of the large cities has been towards asphalt, but owing to the severity of the winters in this city, the greater amount of snowfall and icy rains, I believe that the modern form of granite block paving on concrete base is the most desirable pavement for the heavy travelled business section.

Asphalt paving, however, should be used more extensively in many of the sections of the city where macadam roads are now maintained, owing to the low cost of maintenance, freedom from mud and dust, comparative noiselessness, and the more healthful conditions brought about by its use.

Owing to the small appropriations made for street reconstruction, the department has not been able to extend the asphalt paving as much as would have been desirable. Asphalt paving in addition to Columbus and Huntington avenues, has been extended as far as present conditions would allow to the sections where narrow streets and tenement houses exist.

### SEWER DIVISION.

#### *Appropriation.*

Maintenance.	Specials.
\$280,000 00.	\$705,343 80.

#### *Expenditure.*

Maintenance.	Specials.
\$276,615 25.	\$170,082 18.

For expenditures under Laying-Out and Construction of Highways and Blue Hill and Other Avenues, see page 3.

The Sewer Division has charge of the construction and maintenance of all the sewers and sewerage works.

The mileage of sewers Feb. 1, 1897, is estimated to be 446 miles.

One hundred and sixteen thousand and eight (116,008) linear feet of sewers have been built during the past year by the city by contract or day labor, and thirty-eight thousand two hundred and forty-two (38,242) linear feet have been built by private parties according to the plans, and under the inspection of this division, and accepted under the usual forms of release.

#### CANAL-STREET SEWER SYSTEM.

As far back as 1887, attention was called to the condition of the Canal-street sewer system. A system of sewers filled to the top of the arch for over thirteen years, without being cleaned, most surely needed the immediate attention of this department, more especially as it is located in the heart of the city.

The only proper remedy is to build a main sewer across the city, from the east-side intercepting sewer, which is about four feet lower in grade than the west-side intercepting sewer, which, when built, will immediately drain out all the branch sewers of the district, and will also admit of placing cellars of new buildings at a much lower grade than formerly. In the annual report of the Superintendent of Streets, of 1891, and in all succeeding reports, the urgent need of reconstruction in this district has been dwelt upon. In the 1891 report, to quote briefly:

“Many of the old wooden sewers in the city proper are in very bad condition, and are really ready to fall in, notably those in Beverly, Billerica and Commercial streets. The district drained by Canal street, and bounded approximately by Causeway, Beverly, Endicott, Hanover, Portland and Merrimac streets, is in as bad condition, from a sanitary point of view, as can be imagined. All that portion of the city west of Hanover street, extending to the boundaries named, has been partly or wholly filled with water and accumulated sewage since 1883.”

The report of 1892 said:

“The condition of the first of these, the Canal-street district, was fully described last year. It is not necessary to go into a full explanation this year. Suffice it to say that the sewers are filled from one to three feet with sewage



**OLD SEWER IN CENTRAL STREET, CANAL-STREET RELIEF SEWER.**



sludge, which has been accumulating now about ten years. It is doubtful if there could be anywhere found sewers in worse condition than some in this district. Much of the district drained by these sewers is occupied by crowded tenement houses."

This was the condition four years ago. The need of further comment as to the necessity of pushing the work is unnecessary. Until this year, however, no action was taken. On the urgent recommendation of this department the City Council passed an appropriation of \$25,000 for the beginning of this improvement, and the work is well started. This amount will complete the section from the outlet at Atlantic avenue and Central street to a point near Chatham row. From there a further loan of \$75,000 will be necessary, and will, doubtless, be provided the coming year.

#### FOREST—AVENUE SECTION.

No work undertaken by this department relating to drainage is more manifestly in the interests of the public health than that providing for the sewerage of this fast developing section. It is well known that no sewer system or outlet could be built in this locality until the Dorchester interceptor should have been extended far enough to connect therewith. This is not likely to happen for ten or fifteen years. By providing a pumping plant, however, so as to lift the sewage something less than twenty feet, it could be discharged into an existing sewer.

A former loan to provide for this work was made in 1895, the sum appropriated being \$19,400. Since that time, however, in the development of the plans of Blue Hill avenue, it was found that a long stretch of sewers would have to be constructed therein without an outlet, but that if an increased depth of sewer and an increase of the lift of the pumps at this pumping station were made, at a slightly greater expense, this whole difficulty would be overcome.

Accordingly, the plans were changed, giving a greater depth of wheel-pits, making the whole system ample to take care of both territories. The sum of \$6,000 is therefore necessary in order that the plan, as already made, may be carried on to completion, the ironwork and machinery having already been designed with this end in view.

#### SHAMROCK—STREET OUTLET.

Previous to 1887, a single wooden outlet sewer, four feet by four feet, was in existence at the junction of Shamrock

street and Freeport street (then Commercial street), being the old outlet of the Shamrock-street sewer. As the Dorchester interceptor terminated at this point, this outlet served as an overflow outlet for both sewers, being provided with proper tide-gates. Later the interceptor was extended along the water front toward Neponset, and two more sets of tide-gates were established, to relieve the interceptor during storms.

During the year 1895, the filling of the flats adjoining the City's taking by the owning abutters began to approach the outlets, and proceeding at a rapid rate it has now extended to and across the outlets, which are therefore practically closed. It was necessary to make an additional taking, and to extend the outlet for a considerable distance, and ultimately to the main channel, at an estimated cost of about \$8,000.

The necessity for this immediate construction may be appreciated from the fact that it is the only existing overflow for the Dorchester interceptor between the main interceptor on Mt. Vernon street and Davenport brook. A heavy rainfall would undoubtedly cause extensive backing up of the sewers in all this part of Dorchester, flooding of cellars, leading to claims and suits for damages without limit, if this outlet had not been provided for. An appropriation was secured and the work is nearly finished.

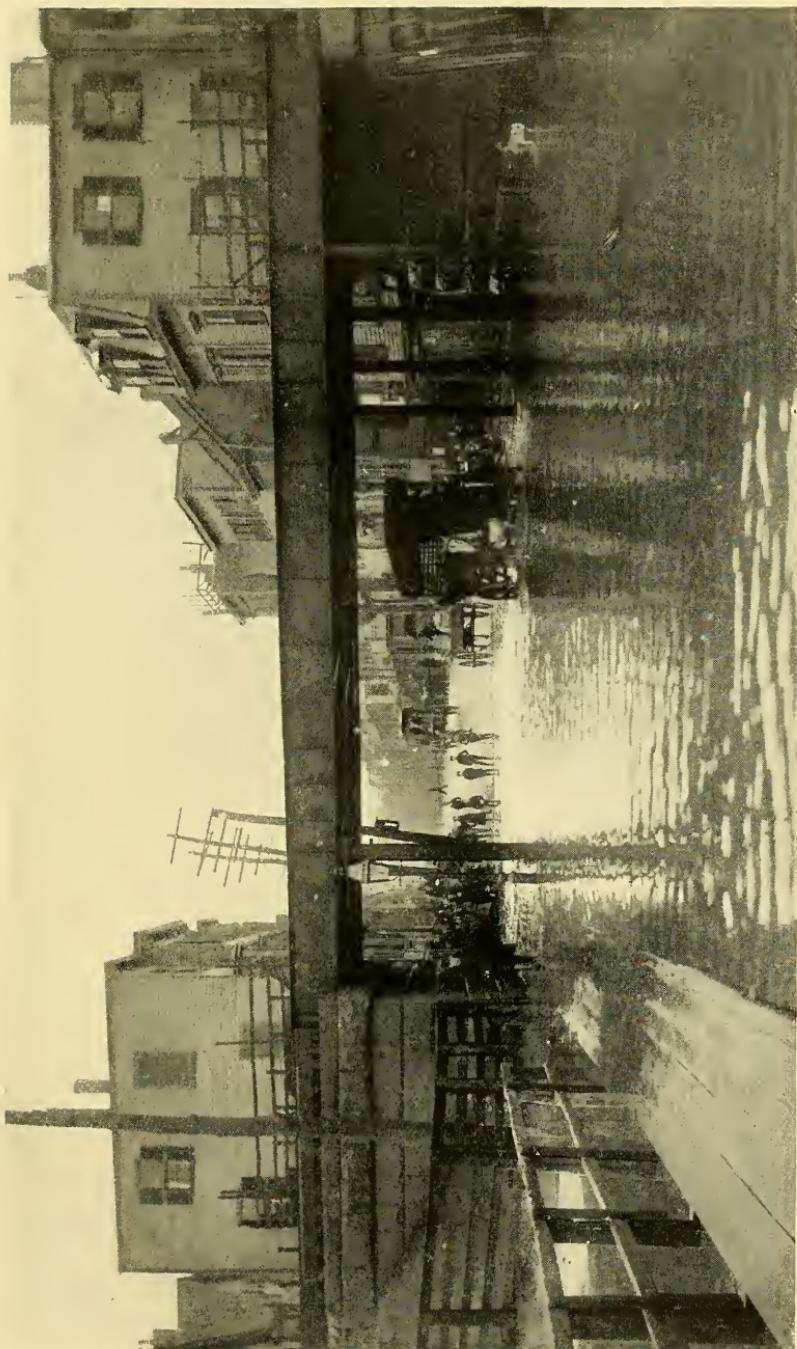
#### DORCHESTER BROOK.

During the past year there has been constructed that portion of Dorchester brook between Norfolk avenue and Clifton street mentioned in last year's report. The construction of the old brook channel being poor and having gone to pieces, it became necessary that this brook be reconstructed. In the reconstruction of the same, the lines of the old channel were abandoned and the new sewer built through a proposed street. One of the principal reasons for reconstruction was on account of the necessity of increased size.

The same question of size comes up on this brook for that portion between Lawrence avenue and the connection, and also from the branch to Columbia street. This brook as at present constituted carries both surface water and house drainage, and is overloaded; and in all probability the brook channel will have to be used for surface water and a house sewer put through, discharging into the interceptor.

#### GUILD ROW RELIEF SEWER.

This is a piece of sewer work that has been advocated in previous reports for a number of years, and the old sewer



D STREET, UNDER N. Y., N. H. & H. R.R., DURING HEAVY RAIN JAN. 21, 1897.



has been a continual source of complaint from the abutters on account of its small size and high level. During the past year the sewer has been reconstructed on a low level with increased size, and removes all trouble and complaints for the future from this locality.

#### B AND SEVENTH STREETS OUTLET.

In the beginning of the year the government made an appropriation for the construction of this outlet of \$35,000. This was a very difficult piece of work, having to cross the tracks of the New England Railroad, but the city has constructed this outlet of ample size clear to the channel in the South Bay. This will remove all trouble in this locality and is the beginning of an extensive scheme of furnishing drainage for this end of South Boston.

The city contemplates proceeding with this system by re-building the sewer on Dorchester avenue from the outlet to D street, and continuing up D street to Eighth street. The relief to be afforded by these sewers is very much needed, and especially for that part of D street which is under the Old Colony Railroad tracks, where it is always flooded whenever a storm and a high tide come together, as can be seen by the annexed picture.

#### STONY-BROOK IMPROVEMENT.

The largest single sewer undertaking has been the commencement of the construction of the extension of the Stonybrook channels.

The following is a brief history of Stony brook :

Stony Brook first claimed the attention of the Legislature in 1868, when an act was passed authorizing the city of Boston and the town of West Roxbury to divert the waters out of the channel for the purpose of improving said brook. This act was amended in 1879 by giving said city and town authority to delegate to commissioners the powers granted them by the Acts of 1868. In 1874, after the annexation of West Roxbury, an act was passed, granting to the city of Boston the same powers, which, by the Act of 1868, were vested in the city of Boston and the town of West Roxbury. In all of these acts it was provided that the cost of the works might be assessed on the abutting property.

The channel, as it existed in 1886, was severely tested by the disastrous floods of February of that year, and proved to be entirely too small to handle the water which was de-

livered. The inadequacy of the existing structure was particularly evident in that portion of the valley lying below Roxbury Crossing, where an area of sixty-three acres was flooded, having more than one hundred buildings.

The occurrence of this flood led to the immediate appointment by the city government of a commission of experts to devise a plan for the prevention of floods in the future. This commission recommended in brief:

*First.* That in order to prevent floods in Roxbury at, and below Roxbury Crossing, a channel be at once constructed, capable of discharging two thousand cubic feet per second, extending from a point seven hundred feet above said crossing to the point of Back Bay park, a distance of forty-five hundred feet.

*Second.* That gradually, as West Roxbury became built up, thereby increasing the amount of flood discharge, the new channel should be extended up stream reaching finally the Hyde Park line.

*Third.* If West Roxbury should become a thoroughly urban district, the channel should be constructed to Neponset river, which, in conjunction with the channel, would handle the ultimate amount that would be delivered.

Steps were immediately taken to carry out the first part of the commissioners' recommendation, viz.: a new channel from a point about seven hundred feet above Roxbury crossing to the Back Bay park. In 1887 legislation was granted authorizing the city of Boston to build a new channel for, and to alter course of, Stony brook, within the above limits; the cost of same to be met by issuing a loan of \$500,000 outside the debt limit. This work was begun immediately and completed early in 1889.

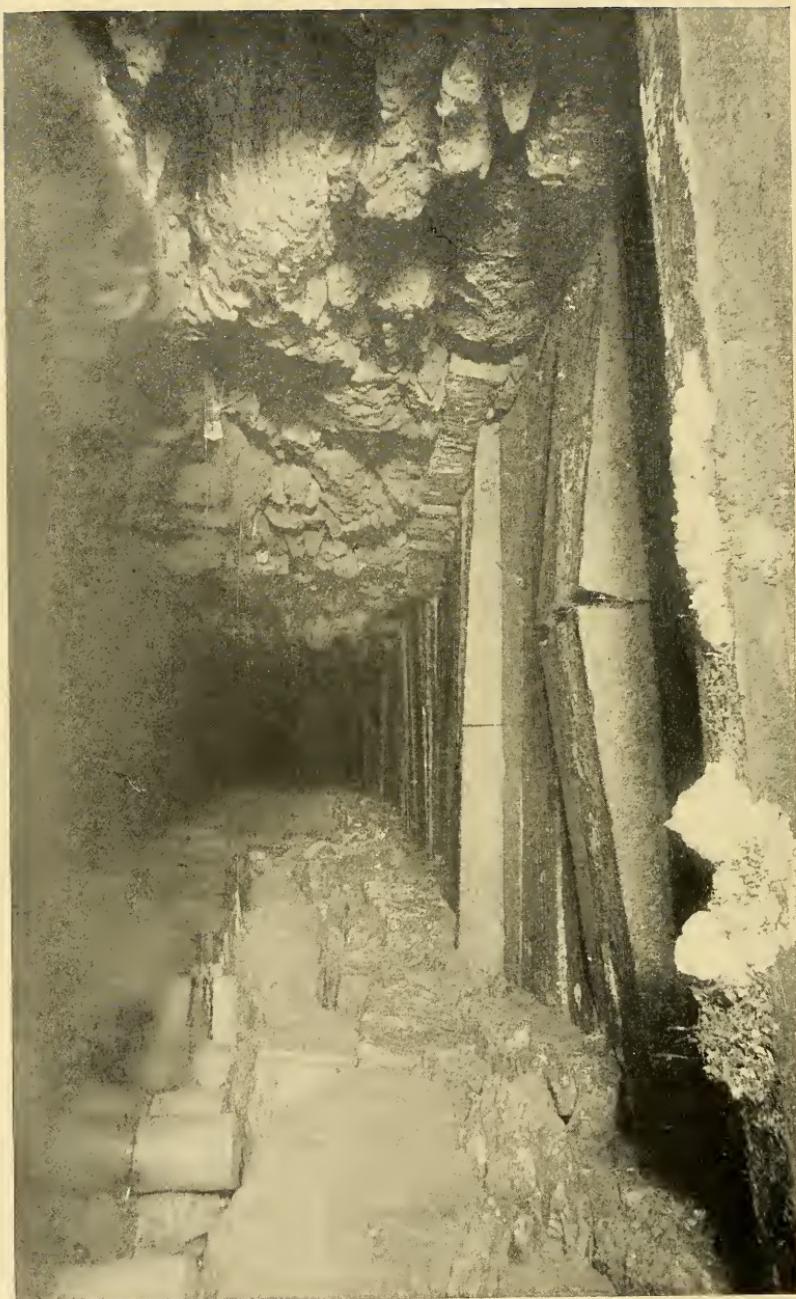
The first step toward carrying out the second recommendation of the commissioners, the extension of the channel up stream into the Roxbury District, was made in 1895, when a section of the channel, about 2,300 feet in length, was built in connection with the separation of grades on the New York, New Haven & Hartford Railroad, for which the necessary special legislation was obtained in 1892-94.

In this section, extending from the sharp turn of the brook, near the railroad, and about 300 feet west of Amory street, to a point about 300 feet south of Boylston station, an old open channel was located on the site of the proposed widening of the embankment, which rendered it imperative that the new channel be constructed in advance of said embankment.

In 1896 legislation was asked from the State Legislature necessary to enable the department to divert and enlarge the



OLD STONE CHANNELS, STONY BROOK, CULVERT STREET.



channel of Stony brook between the section of the commissioners' channel, built in 1887-88, and the section built in 1895, and also the right to borrow outside the debt limit the money for carrying on this work. The length of the proposed improvement was about 3,000 feet, and the estimated cost in round numbers, \$500,000. This request was granted and the act was passed.

The opportunity to do the work at this time made it possible to relocate the channel of the brook within the lines of new Columbus avenue, which is under process of construction through what was formerly known as Pynchon street, extending from Roxbury crossing to Hog bridge. It also made it possible to conduct the work in connection with the improvements being carried on by the city of Boston and by the New York, New Haven & Hartford Railroad Company simultaneously, thus saving a very considerable sum of money.

As the work will be accomplished for a sum well within the appropriation, the Legislature has been petitioned to authorize the expenditure of any balance for the further extension of the covered channel of the brook, which in time must be carried still further towards its sources.

The work of reconstructing the channels was commenced in the middle of the summer from what is known as the old Stony brook gate house to the existing channel constructed by the New York, New Haven & Hartford Railroad Company above Centre street. Work has progressed in a rapid manner and will be finished during the coming summer. When this work is completed, Stony brook will be constructed according to the commissioners' plans as far as a point beyond Boylston street, Jamaica Plain. From this point to a point near Neponset avenue, at the junction of the Canterbury branch, a distance of 13,500 feet, it should be constructed in the same manner, as this portion of the country is low and has become very thickly settled, and the brook needs to be reconstructed so as to afford surface drainage; also, for the purpose of carrying along what is known as the West Roxbury low level sewer, which is built in conjunction with this conduit.

I would strongly advise that the government go to the Legislature the following year and procure another loan for the construction of this brook to the point above mentioned. If this is done there will be opened up and developed a large territory that can be used for suburban residential purposes. With the numerous improvements in the building of the park system, the park driveways, the extra facilities that have been

furnished by the New York, New Haven & Hartford Railroad Company for transportation, this territory will become so thickly settled that unless this is done, the open channel becomes an intolerable nuisance and the object of complaint by the Board of Health.

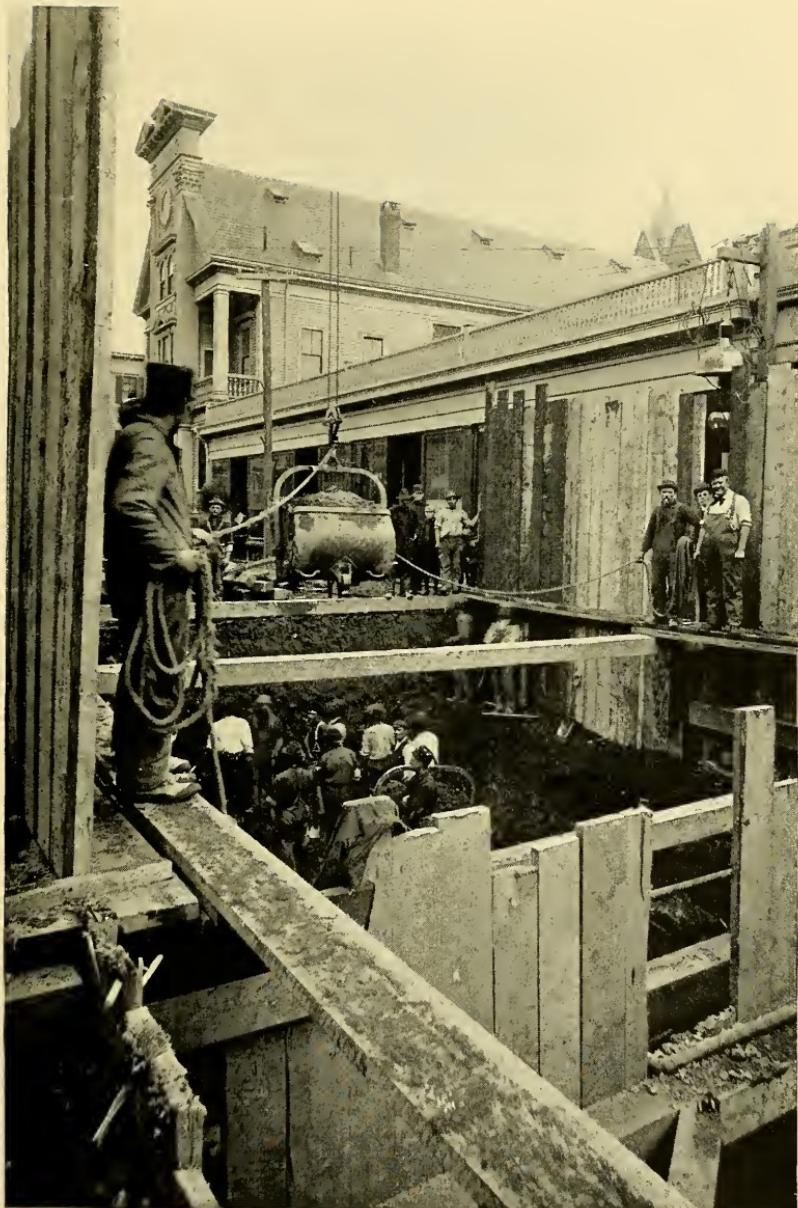
I also think it is necessary that the next Legislature should be petitioned for a sum of money for the reconstruction of the old Stony brook channels from the Belting Company to the outlet. These were constructed many years ago, and were not planned with any engineering skill, as the country at that time was only partially developed, and the brook was walled in and covered with old stone ; and as this part of the territory has become very thickly settled, and a number of these channels are under public streets, namely, Culvert street, Rogers avenue and Vernon street, it becomes necessary, not only from a sanitary point of view, but also for public safety, to reconstruct these channels.

The condition of these channels can be seen by the accompanying engravings. The views show under Culvert street, a street that is heavily travelled, and unless some action is taken it is only a question of time when there will be an accident. Also in rebuilding this, I would recommend that the house sewers be reconstructed at the same time, so as to take out the drainage, as at present considerable house drainage goes into this brook and is discharged into what is called the Back Bay Fens.

During the past year, owing to the reconstruction of Huntington avenue across Stony brook at Rogers avenue, after an examination the brook was found in a condition shown in the accompanying view, and it was decided to line it up with brick work. This shows the manner in which these channels were strengthened, and the remainder of this stone arched construction should be lined with brick work in the same manner.

#### SURFACE DRAINAGE.

Stony brook is but one of the many natural surface drains existing in the suburban sections of the city. Owing to the building up of this suburban territory, and the lack of legislation which gives control of the brook channels, great difficulty has been met by the department to regulate the disposal of surface water. Many of these brook channels run dry in summer, and in many cases houses have been built upon them. The city can take no action in the matter under the present law unless the public street is in some way damaged by the blocking of the water courses. This



TRENCH FOR STONY-BROOK CONDUIT, COLUMBUS AVENUE.



may not occur until the brook channel is practically obliterated, and even then action is slow and difficult.

The following bill presented by this department through His Honor the Mayor, is under consideration by the Committee on Metropolitan Affairs of the State Legislature:

AN ACT RELATIVE TO SURFACE DRAINAGE IN THE CITY OF BOSTON.

*Be it enacted, etc., as follows :*

SECTION 1. The board of street commissioners of the city of Boston may order that any streams or water courses within the limits of said city be diverted from their original channels, or that such channels, or any new channels, be widened, deepened, straightened, paved and covered, or that any part of such streams or water courses be so treated, or that any one or more of such things be done. The mayor of said city shall thereupon, by such officer as he shall direct, cause such orders to be carried out.

SECT. 2. The board of street commissioners of said city, for the purposes aforesaid, may take any lands in fee, easements, rights, and other property that they may deem necessary and desirable therefor ; and to take any property by right of eminent domain, shall sign and cause to be recorded in the registry of deeds for the county of Suffolk a statement containing a description thereof, as certain as is required in a common conveyance of land, and stating that the same is taken for the purposes of this act, and upon such recording the property described in the said description shall be taken for said city. The city of Boston shall pay all damages sustained by any person by the taking of any property under the authority of this act, the same to be agreed upon by said person and said board; and if they cannot agree thereon, the same shall be determined by a jury in the superior court of said county, on petition of said person or said board, in the same manner as damages are determined for taking of lands and laying out of highways in said city.

SECT. 3. The city of Boston shall annually, by ordinary vote, appropriate money for carrying on said work, to an amount not exceeding two hundred thousand dollars, the money so appropriated to be obtained from the sale of bonds and certificates provided for in section three. The total amount of all such bonds and certificates outstanding shall never exceed by more than five hundred thousand dollars the sinking funds established for the payment of the debt created as aforesaid.

SECT. 4. The treasurer of said city shall, from time to time, on the request of the mayor in writing, issue to the amount or amounts so appropriated, negotiable bonds or certificates of indebtedness, payable in twenty years from their date, and bearing interest at a rate not exceeding four per centum per annum, payable semi-annually and fixed by said treasurer with the approval of the mayor, and shall sell said bonds or certificates, or any part thereof, and credit the proceeds thereof, except premiums, to the aforesaid appropriations. The aforesaid bonds and certificates shall not be considered or reckoned in determining the authorized limit of indebtedness of said city.

SECT. 5. The expenses incurred in doing any work under the authority of this act, including interest on the amount expended at the rate of five per centum per annum from the date of the passage of the order, shall be repaid to said city, and such portion thereof as the commission hereinafter provided for shall deem just and equitable shall be assessed upon the several estates any part of which is situated within the natural water shed of the part of the water-course upon which the work is done in proportion to the benefit received by them therefrom, as determined by said commission, and the balance of such expenses shall be repaid by the other estates, any lands of which are so situated, in proportion to the valuation of such lands.

SECT. 6. The assessment aforesaid upon each estate, and for which the estate shall be liable as a part of the taxes thereon, and for which a lien shall attach to the estate, shall be determined by a board of commissioners consisting of the superintendent of streets, the city engineer and the chairman of the board of street commissioners of said city, in accordance with the proportions in which the said board shall determine that the said estates are increased in value by the aforesaid work, such determination to be subject to appeal therefrom to the superior court to determine its correctness, as provided in the case of appeals from the board of assessors relating to taxes.

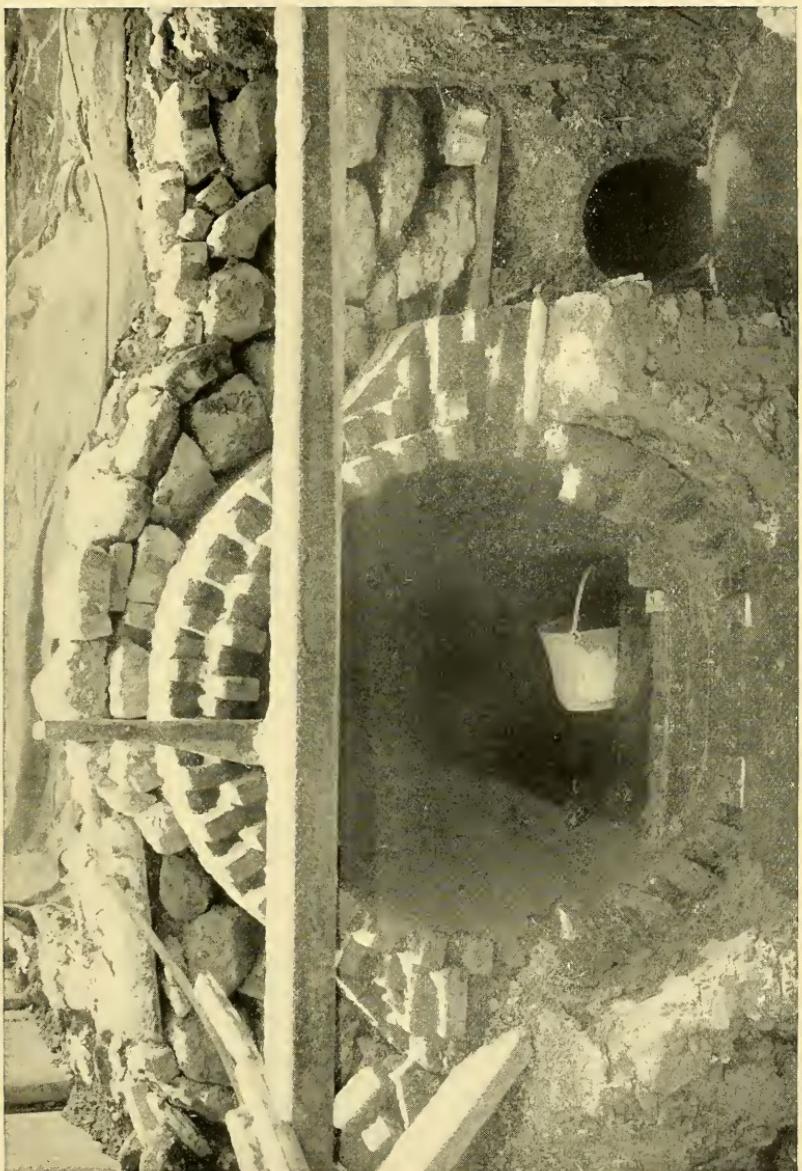
SECT. 7. Said superintendent of streets shall give notice of the amount of every such assessment to the owner of the estate liable therefor forthwith after such amount has been determined, and a lien shall attach to the estate for the amount, as a part of the tax of such estate, and said commission shall deliver to the city collector the bills of said assessments for collection.

SECT. 8. The treasurer of said city shall, from the premiums on loans, and assessments, received during any financial year of said city under the provisions of this act, pay the interest on the aforesaid bonds and certificates accruing during that year, and shall pay over any surplus of the moneys so received to the board of commissioners of sinking funds of said city, to be by them credited to the sinking funds established for the debts incurred under this act. If the amount so received in any such year is insufficient to meet the interest aforesaid, said treasurer shall, unless other provision is made by said city, pay the deficiency from the aforesaid appropriation; and unless said city otherwise orders, shall, when any certificates become due, pay from said appropriation any deficiency existing in the sinking funds established to pay the same, and no moneys shall be raised for interest or sinking fund requirements on said bonds and certificates except as herein provided, unless ordered by said city; but any excess of moneys received by the treasurer in any one financial year above the amount required to meet the interest on the aforesaid bonds and certificates and the requirements of the sinking fund established for said debts, shall be credited by said treasurer to the appropriation for carrying on said work.

SECT. 9. The supreme judicial court, and any justice thereof, and the superior court, and any justice thereof, shall have jurisdiction in equity, on the petition of said city, by its attorney, to enforce the provisions of this act and to prevent the unlawful pollution or obstruction of the channel of any natural stream or water course in said city.

SECT. 10. This act shall take effect upon its passage.

NORMANDY STREET SEWER—SHOWING COMPARATIVE SIZES OF HOUSE AND STORM SEWERS.





The passage of this, it is believed, would largely remedy the trouble, and at small expense compared with the enormous amounts of money which would be required if the provisions for maintaining these natural water channels were delayed much longer.

Careful statistics by districts bearing on this subject will be found in the report of the Deputy Superintendent of the Sewer Division.

#### MAIN DRAINAGE SYSTEM OF BOSTON.

During the past year great attention has been given by the department to the improvement of the present condition and planning for the future development of the main drainage system of Boston. This is the part of the sewer system from Gainsborough street to the pumping station, and includes the pumping station, tunnel, reservoirs, outfall and intercepting sewers. This work was originally constructed by the city of Boston for the purpose of taking care of the sewage of Boston, and by wise foresight was made commodious enough to accommodate the outlying towns and cities that are now under the control of the Metropolitan Sewerage Commission of the Commonwealth of Massachusetts, they discharging into the sewer at the corner of Gainsborough street and Huntington avenue, and another branch into the Dorchester interceptor at Central avenue. The city has been taking this sewage now for six years and has never been able to make definite settlement with the State for the payment of this service. The amount of money that has been received from the State has not been over 50 per cent of the actual value of the work done.

Without consultation with the authorities of the city of Boston, a bill was introduced into the present legislature by the Metropolitan Sewerage Commissioners, providing for the seizure of the main drainage works of the city, the same to be placed under the control of the Metropolitan Sewerage Commissioners. In the opinion of this department, should this act become a law, it would be most unfortunate for the interests of the city, as the present construction to a large degree, and all plans for the future, are made with a view of disposing of house drainage of the city through the main drainage system and the outfall at Moon Island.

The citizens of Boston are directly interested in preventing the pollution of the waters of the harbor, and at a great expense the present system has been designed with a view to discharging the sewage in as unobjectionable a form as

possible. The interest of the inland cities and towns connecting with the Metropolitan system lies in the direction of the smallest cost for the disposal of their sewage, and this matter of harbor pollution, which is of the most vital interest to the residents of Boston, is to them a secondary consideration. That this is no imaginary danger, it is fair to state that the North Metropolitan System, which has been constructed, and is maintained under the control of the State Board of Metropolitan Commissioners, disposing of the sewage of Arlington, Belmont, Cambridge, Chelsea, Everett, Malden, Medford, Melrose, Somerville, Stoneham, Wakefield, Winchester, Winthrop, and Woburn, and as soon as connections can be made, Charlestown and East Boston, has its outlet one hundred yards from the shores of Deer Island, the pumping station being on the island. No storage basins or settling channels are provided, the sewage being pumped directly into the harbor at all stages of the tide.

The system on the south Metropolitan, which has always been controlled and planned under the direction of the city of Boston officials, maintains at the pumping station settling basins, from which the deposits, or so called "Sludge," is removed to barges and carried to sea. The grease deposits, which are very offensive if allowed to pass into the bay, are collected at the east shaft. The sewerage water then passes to Moon Island, where it is held in storage basins until one hour after the beginning of the ebb tide, and is then allowed to pass out to sea.

In addition to this most vital objection to State control of the Boston Sewerage System, it can be stated that with the taking of the main sewers, all regulation of the connecting sewers must necessarily be placed in the hands of the State Commission. In the arguments made by those favoring the bill, no claim was made that under the control of the city of Boston, these works had not been wisely, efficiently, and economically carried on.

It is hoped that representatives of the cities and towns in this so called Charles-river district will in the future avail themselves of the opportunities for information which this department most freely offers them.

In the past, although the subject of seizure by the State was of the most vital interest and importance, no representative of the district outside of Boston conferred with, or asked for information from this department.

Plans for additional pumps and storage basins are being prepared, as the present capacity of the plant is nearly

reached, the pumps handling an average of 75,000,000 gallons per day.

#### PUMPING STATION.

During the past year extensive repairs have been made on the machinery of the Main Drainage Works at Cow pasture. Both the high and low duty pumps have been overhauled and new laggings put on. These pumps are now in a first-class condition, excepting the valves, which will be overhauled this ensuing year. The old buildings and sheds around the station have been removed, the grounds graded and seeded, making a great improvement in the looks of the station.

Mr. Leavitt, the mechanical engineer, who designed the original pumps of this station, is now designing a sixty-million gallon pump, which will be erected as soon as possible; in the meantime the pumping capacity of the two high duty pumps will be increased so that their maximum duty will amount to one hundred and fifty million gallons per day.

One of the great troubles experienced at this station is the disposal of filth from the filth hoist. The engineers of this department are now working upon a method of disposing of this by cremation, which will probably be put in operation as soon as possible.

#### HIGH-LEVEL SEWERS.

I would also recommend that the coming year the city of Boston apply to the Legislature for a certain sum of money to begin what is known as the high-level intercepting sewers. These sewers were recommended by the original commission in 1876 to be constructed so as to afford relief to the pumps. It was also recommended by the Superintendent of Streets in the annual report of 1891, he then making the statement that this was an essential part of the scheme to intercept the sewers of Boston, to carry the sewage from the highlands directly to the outlet by gravity and thus avoid pumping. To do this a system of intercepting sewers was projected in Dorchester, Roxbury and Brighton, to intercept the sewage from all lands above grade 40. The engineers of this department have not made a more extensive study of this scheme for the reason that it was thought that inasmuch as this sewer would have to be located in part in territory outside the city limits, the work would be advocated and carried out by the Metropolitan Sewerage Commission, but as yet

they have done nothing towards furthering this scheme. The city of Boston should, therefore, take hold of the matter, and especially build those portions that lie within the city limits.

In regard to the maintenance appropriation provided for this division, it is entirely inadequate. The past few years miles of sewers have been added, and, as in the Paving Division, the amount of money provided for their care has been decreased.

The maintenance appropriation is used for the purpose of administrative expenses, engineering, cleaning and flushing of sewers, which is something that needs to be done thoroughly every year, the sewer becoming a festering place if not kept clean, generating disease and making a nuisance to the neighborhood, the gases and odors arising from the manholes finding their way into the houses.

The care of some 12,000 catch-basins, if properly attended to, is expensive but necessary. A majority of these basins should be cleaned from three to four times a year. Under present conditions, not over five or six thousand are cleaned annually. Unless cleaned frequently, the catch-basin fills, rises over the trap, and then the basin becomes useless. In other cases the dirt and débris are carried through the trap into the sewer. This clogs the sewer and makes an expense to the department for the cleaning of the sewer.

Maintenance money is also used for the reconstruction of those portions of the sewers that break in or become damaged, and have to be replaced with new sewers.

One hundred thousand dollars of the maintenance appropriation is used in the running of the Pumping Station at Cow Pasture and the main drainage outlets at Moon Island, and the sum necessary increases each year.

There should be legislation passed putting within control of the Street Department the making of all house connections, with the power to assess the cost of so doing; the compelling of stables, factories, and other parties who use a sewer, if necessary, to put in catch-basins or settling tanks for any material and matter which is detrimental to the sewers.

Inspectors for the Street Department should have the right to enter buildings and inspect, in cases of doubt, the quality of sewage that is discharged therefrom, as, for instance, numerous complaints are received of naphtha gas and other detrimental materials discharging into sewers. No entry can be made into the sewer on account of the gas, and yet the department has no authority to enter any factory or building to make proper examination.

The great importance of a proper maintenance of the sewerage system of the city, and the difficulty which has been, and will always be met, of obtaining from the tax levy the amount necessary to properly do the work, has led this department to suggest the passage of an act providing for the adoption of a rental system for sewer service, much on the lines of the Water Department system of charges, and the following bill was drafted, and is now under consideration of the Legislative Committee on Metropolitan Affairs.

AN ACT TO PROVIDE FOR THE CONSTRUCTION OF SEWERS IN THE CITY OF BOSTON.

*Be it enacted, etc., as follows:*

SECTION 1. The board of street commissioners of the city of Boston may from time to time, with the approval of the mayor, order the construction of sewers in said city, as they deem that public necessity and convenience require, and may take land therefor in the same manner, and under the same provisions of law, as said board takes land for the laying out of highways, the expenses incurred for such taking, and other expenses of constructing said sewers, to be paid from the proceeds of the loan hereinafter authorized.

SECT. 2. The treasurer of the city of Boston shall from time to time, on the request of the mayor of said city, issue bonds or certificates of indebtedness of the city of Boston to an amount not exceeding five hundred thousand dollars. Said bonds shall not be considered in determining the limit of indebtedness of said city. Said bonds shall be issued for the term of thirty years from their date, shall be registered or coupon, and shall bear interest, payable semi-annually, at such rate, not exceeding four per centum as the treasurer of said city, with the approval of the mayor, shall determine. Said treasurer shall sell said bonds and hold the proceeds thereof in the treasury to meet the expenses aforesaid.

SECT. 3. Said board shall establish just and equitable charges for the use of sewers constructed after the passage of this act, to be paid by every estate abutting on the portion of the street in which such sewers are located, and may change said charges from year to year; said board shall likewise establish just and equitable charges for the use of sewers heretofore constructed, and in determining the amount of such charges shall give all estates for which any assessment has been paid for the construction of a sewer, such credit on account of such payment as in the judgment of said board would be just and equitable, having regard in every case to the amount of assessments paid and the length of time which has elapsed since such payment, and the amount of use that such estate has made of the sewer. The determination of such charges by said board shall be final in all cases. Such charges shall constitute a lien upon the real estate, and the annual amount thereof shall be inserted in the tax bill for such estate, and be collected in the same manner and as a part of the taxes on such estate.

SECT. 4. This act shall take effect upon its passage.

Under this system, it would be possible for sewers to be built when needed, and not as at present, when the city can find available money. The proposed plan seems fairer to each individual and no hardship on property. The subject is worthy of the most careful consideration and study. From the investigation made by this department, the plan seems a wise one.

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### SANITARY DIVISION.

Appropriation.	Expenditure.
\$435,000.	\$477,241.54.

The past year the collections of this division were as follows:

363,975 loads of house dirt and ashes ;  
56,402 loads of house offal.

The matter of collection and disposal of offal in large cities becomes each year a more serious problem. In the city of Boston some action of the government towards a more scientific and sanitary method of its disposition is advisable.

During the last fiscal year about 86 per cent of the offal collections were sold to farmers, the remainder being towed to sea.

The scarcity of convenient dumping places for the disposal of ashes and other dry refuse collected from stores and dwellings is a steadily increasing expense, and will so continue until some arrangement is made for the destruction of the combustible portion, which amounts to some 50 per cent of the total. Much of the dry material collected, though not heavy, is very bulky in its nature, and during the past year it was deemed advisable to increase the capacity of the collection carts one-third. Boards were attached to the sides, flaring outward to prevent the refuse from littering the streets while the load was in transit. Some objection was raised to this plan on the ground that it caused excessive loading, but the erection of platform scales on the corner of Massachusetts avenue and Swett street, near one of the dumps, showed that of a total of 1,000 loads in February, the average weight per load was about 1,600 pounds.

A committee has been appointed by the City Council, consisting of the City Engineer, Chairman of the Board of Health, and the Superintendent of Streets, to investigate the

subject of garbage disposal, and a report will soon be made on this subject to His Honor the Mayor.

During the past year residents have been instructed to report the non-removal of ashes or offal to the police. The complaints are promptly forwarded to this office and receive immediate attention. This system should be encouraged.

The property at Fort Hill Wharf, used as the principal dumping station, is in a dangerously dilapidated condition. Its reconstruction and enlargement so as to accommodate an additional dumping boat and also to remove the present objectionable features is recommended, and an appropriation will be asked from the city government.

It is the purpose of the department to abolish, April 1, the offal station in the Highland-street yard, Roxbury. It has long been objectionable, on account of its proximity to the Marcella-street Home, which provides for the care of several hundred children. This will add to the maintenance expense of the division, as the offal must now be hauled to the South End yard.

A new horse-shoeing plant has been established at the West End yard, giving satisfaction to the department, and making a saving in expense. The greater part of the horse shoeing of the Street Department is done by this division, which also builds and repairs the carts, harnesses, etc., and paints all the street signs.

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#### STREET CLEANING.

Appropriation.	Expenditure.
\$300,000 00	\$310,266 39

Cleaned 12,080 miles of streets.  
Removed 112,961 loads of dirt.

This division has been maintained on the old lines, but with an increased force and efficiency.

The work of the push cart patrol service has been extended, and a further extension is recommended.

As in the other divisions, the maintenance appropriation for the work is not sufficient. From year to year the public

expect a higher standard in the cleanliness of the streets, and although the mileage is increased, the amount of the appropriation remains at a standstill. In New York, under the administration of Colonel Waring, the appropriation is comparatively very much greater, and special appropriations for snow work are made. The public in that city, appreciating the great value of clean streets, both from a sanitary and commercial point of view, have been liberal in the matter of expenditure.

Every effort has been made the past year to secure the active assistance of the police in the enforcement of the ordinances forbidding the throwing of paper and other rubbish into the streets; circulars printed in various languages have been distributed and co-operation with the charitable organizations in this work encouraged; but the results have not been very satisfactory. It would seem that this matter might be better controlled by the police. An effort was made through the Police Commissioners to secure the appointment within the department of special officers who might give this matter of unnecessary dirt in the streets their entire attention with some authority to arrest. The Commissioners have decided that this under the law could not be allowed. The remedy, therefore, remains in the hands of the police. A more detailed account of the conditions existing in Boston as regards street cleaning will be found in the report of the Deputy Superintendent in charge of that division.

### BRIDGE DIVISION.

#### *Maintenance.*

Appropriation.	Expenditure.
\$120,000 00	\$119,963 55

#### *Specials.*

Appropriation.	Expenditure.
\$55,543 86	\$27,172 77

This division has charge of 128 bridges. Many of these are old and in poor condition, and it requires the most con-

stant care and activity on the part of the Deputy Superintendent to keep all safe and in condition for travel.

Special appropriations should be passed the coming year for reconstruction work on the following bridges:

Warren avenue . . . . .	\$5,000 00
Mt. Washington avenue . . . . .	4,500 00
Congress street . . . . .	7,000 00
Malden . . . . .	6,000 00
Columbus avenue . . . . .	2,000 00
Broadway . . . . .	10,000 00

The past year in the Bridge Division has been a most active one. The work of the division has been systematized, and the amount of maintenance work on the bridges greatly increased. With the money available, a great deal has been accomplished. New features of the work being the reconstruction of Meridian-street bridge, and the introduction of electric power in place of horse power, and the rebuilding of the Essex-street bridge, Boston side.

I would recommend for this division a larger and more convenient building than the present quarters on Foundry street for an office, storehouse, and work shop. There should also be attached a stable with yard room, which would give ample accommodations for the storage of lumber.

The drawtenders should be given authority as special police officers so that the rules governing the use of the bridges and waterways might be better enforced.

#### FERRY DIVISION.

##### *Appropriations.*

Maintenance.	Expenditure.
\$218,000.	\$217,999 95.
Specials.	Expenditure.
\$742 94.	\$742 94.

For expenditure under the New Ferry Landing, see page 4.

The need of additional and improved ferry facilities for East Boston was recognized by the Legislature, and an act was passed authorizing the city to borrow outside the debt limit the sum of \$500,000 for new ferry landing. This subject has received considerable attention and study by a committee of the City Council, this Department and the East Boston Trade Association. Definite plans of location,

however, have not been decided upon, owing to the difficulty of securing the proper sites for new landings.

The sum of \$30,000 of the special appropriation by a vote of the City Council was made available for the building of certain drops and slips which had long been considered and condemned as unsafe. These would be a part of any new plan of public improvements which ultimately might be adopted. Plans are also being prepared for a new boat, the construction of which will be pushed forward as rapidly as possible.

The best plan presented for the general improvement seems to be for the city to retain its present locations, making additional slips at the South Ferry, rebuilding the head house of the South Ferry, East Boston side, and the taking of the Boston, Revere Beach & Lynn Railroad Company boats and landing for a southern terminus.

From special appropriations there were added this year a permanent awning over sidewalk at North Ferry, East Boston side, an illuminated clock on the head house, North Ferry, Boston side ; electric motors at the North Ferry, East Boston and Boston sides, for hauling heavy teams up the drops, thus replacing horse power.

Great satisfaction has been expressed at this latter improvement, by which frequent and tedious delays have been overcome, and in addition a substantial saving in cost has been made.

Two boats have been coppered, and all the boats have been on the ways, thoroughly repainted and overhauled, and various minor, but important as regards public comfort, improvements made in the head houses.

#### STREET WATERING DIVISION.

Maintenance.	Expenditures.
\$70,000 00	\$71,211 81

The street watering season of 1896 was a most trying one as regards weather, and with the appropriation smaller by many thousands than in past years, the results attained were quite satisfactory. The growth of the city and the extension of the street watering into the early spring and late fall months, make it imperative that a larger appropriation should be made, if the work is to be done in a manner satisfactory to the public. Under the present ordinances, the city undertakes the watering of all macadam roads, paved streets being paid for by the abutters.





The work of the division the past season commenced on the 25th of March, and carts were employed in portions of the city proper, as late as the 4th of December. Certain sections of the city are greatly troubled with dust after the freezing season sets in and many complaints are received. No plan of watering is possible, owing to the fact that the water in the stand pipe becomes frozen, or if put on the streets becomes iced, and there seems to be no way of abating the nuisance.

The construction of the subway has been the occasion of much dust and consequent complaints.

As Blue Hill, Huntington, Commonwealth, Brighton and Columbus avenues near completion, it becomes necessary to provide for their care. The present force of carts are given more miles of streets than efficiency should require, and an increase in the expenses must be allowed for the above avenues and other new streets.

It is the intention the coming season to provide for an auxiliary force to be called out on days when the conditions are exceptional, and the regular number of carts inadequate to the demands upon them.

Considerable attention was given the past year to the system of watering, in use in other cities, by means of electric watering cars. This system has been on trial for some years with great success. After formal correspondence and apparently satisfactory arrangements with the West End Street Railway Co., hydrants were constructed in the section of the city, shown on the map herewith annexed, for the purpose of giving the system a thorough trial. From the five hydrants as indicated on the map, a very large territory might be watered at a comparatively small expense. After one day's trial, the West End Railway Company notified the department that under their charter, such service was not allowed, and the experiment was discontinued. A bill has been introduced in the State Legislature this year, providing that street railways may enter into contract to perform such work, and on its passage, this system will be given a fair trial, and, if the results are satisfactory, plans will be made for the extension of the service the coming year. Pending the passage of the bill, the West End Street Railway Co. have refused to consider any proposition. They opposed the department bill, and will probably be able to hold back the so called "permissive bill" until such time as it is too late to make arrangements for this season. This electric sprinkling car service would be of the greatest value on the long macadam roads extending through the suburban dis-

tricts, where proper watering is a matter, under the present system, of too great expense to be undertaken.

#### PURCHASE OF SUPPLIES.

It has been found impossible for the Superintendent to give more than a supervisory attention to the purchasing of supplies for the department, so that the title of the official charged with this responsibility has been changed from "Purchasing Clerk" to "Purchasing Agent." Requisitions are still signed by the Superintendent, but the detail of the work all falls on the Purchasing Agent. There has been established a central supply department and a stock room, so that the Purchasing Agent may take advantage of the market by purchasing in larger quantities and at advantageous periods. The distribution of supplies can also be handled better in this way, and a closer check kept on the quantities used in the various districts.

#### HORSES.

The number of horses owned and cared for by the department averages over five hundred, divided by divisions as follows:—

Central Office . . . . .	4
Bridge Division . . . . .	10
Ferries . . . . .	1
Paving Division . . . . .	112
Sanitary Division . . . . .	197
Sewer Division . . . . .	74
Street-Cleaning Division . . . . .	97
Street-Watering Division . . . . .	2
<hr/> Total . . . . .	497

Up to the present year, there had been no system of record, the only figures being so many horses assigned as might be. A horse was a horse, and there was on file no information as to the date of purchase, cost or description. In March, 1896, an examination was made by the head veterinary, each horse duly described under a number assigned and attached around his neck by a strap with a brass tag thereon. Such information as could be gathered from the stablemen was also added to the record. At the central office is now kept a general book containing by number a description of each horse, assignment, time bought, price paid, transfer, sale, or death; and at each stable is also kept a local book of record. Veterinary bills are now rendered, giving the number of the

patient, cause of visit, etc. This not only puts an end to certain abuses which have existed heretofore in the department, but is in many ways serviceable and business-like. New horses can only be received in the department after examination by the head veterinary and his written approval on a blank provided therefor. Likewise, horses sold or killed must be examined and condemned in due form by the head veterinary.

#### LABOR.

The labor of the department has this year been put on a permanent basis, under the following plan:

At the beginning of the financial year the number of men in each division who, under the maintenance appropriation, can be safely carried is estimated, and these constitute the permanent men, and they can feel assured of steady work the year through, unless by act or fault of their own they forfeit their place. Such additional men as are needed in the active working season of the department will be rated as reserve or substitute men. These men can depend on employment only so long as the work of the department requires their services. As vacancies occur in the permanent force, promotions will be made from the reserve men.

I believe this will remedy the very unsatisfactory condition which has prevailed up to this time. It is only justice and common sense that the men should know their true position. Under the old organization, when the winter cut-down came, no one was prepared. It may have been common knowledge that the cut was coming, but each individual felt that he was not the one who should go. This not only created suffering and loss to the men suspended, but brought an almost unbearable pressure for reinstatement on the heads of the department.

The new plan should meet with success, and prove an incentive to faithful effort, of the permanent men to hold their places, and of the reserve men to gain promotion.

#### STABLES AND BUILDINGS.

At the Highland yard, Roxbury, much-needed additional stable room was made by building a runway to, and stalls on, the second floor. These stalls are of the latest sanitary pattern, and at a slight expense the number can now be increased.

The condition of the Street Department buildings was such that, by request, the Superintendent of Public Buildings

made a report to His Honor the Mayor. This report showed a very pressing need of expenditure for putting in repair, and needed extension, of the buildings.

It is very important that there be provided for the department a hospital for new and sick horses. Plans have been drawn and a location selected, and it is hoped that the city government will make available a sufficient appropriation, so that a model hospital may be established. At present the conveniences and apparatus necessary for the proper care of sick horses are wanting, and the consequent loss by death and sickness is very considerable.

The expenditures for improving the Street Department plant have been very considerable. Carts, horses and tools were in poor condition.

Owing to the expiration of the lease of No. 12 Beacon street, the Sanitary, Street Cleaning, Bridge, and Street Watering Divisions removed to the Tremont Building until such time as room would become available to them in the reconstructed Historical Society Building, of which lease has been taken by the city.

It would greatly benefit and advance the administration of the Street Department if all the divisions were gathered under one roof with the Central Office.

#### TOW BOAT "CORMORANT."

The department tow boat, "Cormorant," built in 1893, has been put in first class condition. She was taken on the ways, caulked, painted inside and out, wear and damage caused by her constant and rough work repaired, machinery and boilers thoroughly overhauled, and a most important improvement made by the addition of steam-steering gear. This latter expense was deemed warranted, from the fact that this boat must make her daily trip to sea in any and all conditions of the weather. With weather heavy, this steam-steering gear is a matter not only of comfort, but of safety.

#### SMOKE NUISANCE.

Following out the provisions of the statute law relative to the abatement of the smoke nuisance in the city of Boston, the work has been authoritatively assigned by the Mayor to this department. A careful inspection of all boiler plants has been made from time to time, and strict regulations have been enforced in all cases. Especial attention has been given to the setting of new boilers in order to prevent the entire disregard to the smoke question which seems to have been customary.

No permit is now given by the Inspection of Buildings Department unless the applicant has first filed satisfactory evidence with this department that reasonable precautions have been taken to reduce smoke to a minimum.

During 1896, 331 boiler applications have been received and disposed of. Careful and detailed observations have been made in many cases, both with and without the knowledge of the owners, and from the tables the percentage of total smoke and clear stack have been computed. When complaints have been received, they have been immediately followed up until the source of the trouble has been located and remedied. Eight prominent buildings during the year have equipped their plant with good smoke preventers. Numerous other plants have been willing to use hard coal or a mixture of screenings and soft coal with good results.

Twenty-six special reports have been made by the smoke inspector on various alleged violations of the smoke law, requiring in some cases extended observations. Forty-four observations have been taken, lasting from five to nine hours each, while 285 short observations have been taken and cautionary notices issued where they seemed to have been required.

In general, the citizens of this community have shown a commendable desire to operate their various plants, not only within the law, but consistent with the just requirements of a congested business district.

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#### BOSTON AND CAMBRIDGE BRIDGES.

It is but fair to state that the care and responsibility has been chiefly borne by my associate Commissioner, Mr. William J. Marvin, of Cambridge, and I desire to express my appreciation of his work.

The condition of these bridges is such that only by the most careful management can the work of keeping safe be done at an amount near the appropriation, which this year, on the part of the city of Boston, was \$13,000. The actual cost to each city was \$13,835.54.

A new bridge to Cambridge, to replace the West Boston Bridge, should be planned for at once. The present structure is entirely inadequate to the demands of travel, and the condition is such that it cannot possibly be made to do duty but a short time longer.

## CANAL OR CRAIGIE'S BRIDGE.

The bulkhead at the end of the bridge at the draw has been rebuilt with oak piles and 6-inch hard pine plank. The end of the down-stream draw pier has been strengthened by driving additional oak piles, and planking with 6-inch hard pine plank. The roadway pavement has been repaired and the sheathing of the draw kept in repair. The ordinary small repairs have been made by the drawtender and his assistants.

The bridge is swept once a week, always after midnight, and the roadway is watered with salt water three times daily, when necessary to lay the dust.

The sidewalks on the southerly side of the bridge on the Cambridge end, and part of the northerly sidewalk are in poor condition and will require rebuilding next year. The drawtender's house and the power house on the draw pier should be painted.

## HARVARD BRIDGE.

Harvard bridge is in good condition. The principal repairs made during the year are as follows: The wearing plank on the surface of the roadway has been entirely renewed, without interrupting public travel. Experience has shown that the two-inch spruce plank making the wearing surface of the roadway will have to be renewed every year.

The ironwork underneath the surface of the bridge has been cleaned from rust and painted. Paint stock was bought at wholesale prices, and the work done by the day.

The asphalt sidewalks on the bridge were in bad condition. They were originally laid by two asphalt paving companies, each of which gave bonds in the sum of one thousand dollars conditioned upon maintaining the work in good condition for five years. One-half of the sidewalk on the bridge laid by the Barber Asphalt Paving Company has been entirely renewed by them without cost to the two cities, and the remaining sidewalk will be made good by the guarantors next year.

The avenue connecting the bridge with Boston has been paved at the request of the Commissioners, and the part of the avenue in Cambridge next the bridge should also be paved to prevent cracked stone and dirt from being carried on to the bridge by teams.

The drawtender's house, the iron fences, and the iron work outside the rail will require painting next year.

The smaller repairs are made by the drawtender and assistants. They also clean the surface of the bridge weekly, and keep the electric light globes clean and in order.

## PRISON-POINT BRIDGE.

The abolition of the grade crossing of the Boston & Maine Railroad, which will soon be made, will require an entirely new bridge at this point. The old bridge is in bad condition, as only such repairs as are necessary to keep it safe have been made.

The smaller repairs have been made by the drawtender. The drawtender's house will have to be painted next year.

## WEST-BOSTON BRIDGE.

This bridge is entirely worn out, and only constant inspection and repairs prevent serious accidents. During the year the piles supporting the bridge settled in places as much as five inches under the extreme loads carried. To stop this alarming settlement repairs were made on small sections at a time without interrupting travel. Additional piles were driven through small openings made in the bridge, and 62 oak piles, 30 spruce piles, 41 new stringers and 12 new girder caps were used.

The bridge for a long time has been too narrow to accommodate the travel which is constantly increasing. It is in the line of the heaviest travel from Boston to Cambridge and the country beyond, and the Commissioners recommend the immediate construction of a substantial modern bridge.

The curb was reset and brick sidewalks laid in front of the estates of Rawson & Morrison and G. Damon. The roadway on the draw has been resheathed when necessary.

The bridge has been swept once a week, always after midnight, and watered three times daily with salt water in dusty weather. The sweeping of the piers and draw, the cleaning of snow from draw-piers and sidewalks and the small ordinary repairs have been done by the drawtender and assistants.

The house on the draw-pier will need painting and other repairs next year.

## IN GENERAL.

The usual statement is appended, showing the number of draw openings and the number of vessels which passed through, also table showing the traffic over bridge on April 18, 1896.

The amount of revenue received for rents, dockage, repairs to West End Street Railway Company's tracks, etc., during the year has been \$1,424.02; one-half, \$712.01 has been paid to each city.

**Statement showing Traffic over Bridges.**

DATE. 1896.	Bridge.	Teams.	Horses.	Pedestrians.	Bicycles.	Electric Cars.	Car Passen- gers.
April 18, 6 A.M. to 7 P.M.	Canal .....	7,284	10,926	14,913	202	563	12,695
	Harvard .....	3,801	4,851	7,998	3,352	478	13,750
	Prison Point.....	1,975	2,916	3,962	95		
	West Boston... ....	4,035	5,466	9,902	246	1,046	20,231
	Totals .....	17,095	24,159	36,775	3,895	2,087	46,676

The following is a statement of the payments made by the city of Boston on account of the Canal, Harvard, Prison Point and West Boston Bridges, from Feb. 1, 1896 to Jan. 31, 1897.

Amount of appropriation for financial year of 1896-97. . . . .	\$13,000 00
Transferred from Street Department, Pav- ing Division . . . . .	835 54
Amount expended to Jan. 31, 1897 . . . . .	\$13,835 54

## Classification of Expenses.

Feb. 1, 1896, to Jan. 31, 1897.	Canal or Craigie's Bridge.	Harvard Bridge.	Prison Point Bridge.	West Boston Bridge.	General Account.	Totals.
Salaries, draw-tenders and others .....	\$1,307 50	\$1,275 00	\$273 94	\$1,250 00	\$250 00	\$4,356 44
General repairs.....	505 68	420 28	140 49	1,255 21	.....	2,321 66
Lumber.....	328 73	1,103 99	130 54	577 31	.....	2,140 57
Electric lighting .....	281 27	1,141 67	.....	506 27	.....	1,929 21
Inspection .....	162 50	95 00	47 50	242 50	.....	547 50
Cleaning Bridges.....	197 12	54 20	.....	278 38	.....	529 70
Paint and painting.....	.....	375 56	.....	1 06	.....	376 62
Ironwork .....	41 00	153 37	31 65	129 48	.....	355 50
Watering roadways .....	175 00	.....	.....	175 00	.....	350 00
Fuel.....	137 55	13 95	.....	78 61	.....	230 11
Tools and hardware.....	28 63	73 85	25 98	21 58	.....	150 04
Electric current.....	.....	150 00	.....	.....	.....	150 00
Sundry small supplies....	48 93	56 13	.....	37 06	.....	142 12
Paving .....	.....	.....	.....	104 96	.....	104 96
Travelling expenses, etc.....	.....	.....	.....	.....	62 30	62 30
Water rates.....	16 00	.....	5 50	11 00	.....	32 50
Printing and stationery.....	.....	.....	.....	.....	28 81	28 81
Electric light repairs.....	.....	27 50	.....	.....	.....	27 50
 Totals .....	\$3,229 91	\$4,940 50	\$655 60	\$4,668 42	\$341 11	\$13,835 54

**Number of times the draws in Canal, Harvard, Prison Point and West Boston Bridges have been opened and the number of Vessels which have passed through for the year, beginning Feb. 1, 1896 and ending Jan. 31, 1897.**

DATE.	CANAL OR CRAIGIE'S.		HARVARD.		PRISON POINT.		WEST BOSTON.	
	Number of Draw Openings.	Number of Vessels Passed Through.	Number of Draw Openings.	Number of Vessels Passed Through.	Number of Draw Openings.	Number of Vessels Passed Through.	Number of Draw Openings.	Number of Vessels Passed Through.
Feb. 1, 1896, to Jan. 31, 1897.								
February, 1896.....	125	175	22	32	21	28	27	44
March.....	149	201	20	38	15	22	31	66
April.....	289	320	50	70	39	50	70	107
May.....	397	504	124	187	74	94	155	239
June.....	384	448	88	123	32	41	113	161
July.....	329	421	107	158	9	13	154	257
August.....	433	731	127	194	52	65	285	644
September.....	323	465	85	131	41	53	176	354
October.....	229	325	65	98	42	57	121	214
November.....	276	346	115	161	36	54	110	175
December.....	281	362	144	155	37	51	109	171
January, 1897.....	186	237	36	38	15	22	33	51
Totals.....	3,401	4,535	983	1,385	413	550	1,384	2,483

#### EMPLOYMENT OF LABOR.

The following statement from the Civil Service Clerk shows in detail the classification of labor of the whole department tabulated by divisions which is self explanatory :

During the year ending Jan. 31, 1897, 82 applications were made upon the Civil Service Commission for 226 men of various grades, and 330 names were submitted by them, of which number 250 were given employment in the several divisions ; of the 250 people employed, 6 were provisional appointments (Civil Service Rule 36), 5 were promotions, and 32 were veterans. During the year authority was granted to reinstate 49 former employees (Civil Service Rule 60), 48 men were transferred from various city departments to this department, to wit: 15 from Water Department, 9 from Transit Commission, 9 from Improved Sewerage, 8 from

Public Grounds, 4 from Parks, and one each from Mt. Hope, Health, and City Engineer's Department, making the total of 347 persons employed during the year. Notices of 372 discharges from the department rolls were forwarded to the Commission, and at their suggestion the names of persons who had not worked for a year or more for the Street Department were dropped from the rolls, and their discharges are included in the figure quoted above. The department records show that there are 2,909 persons eligible for employment in the various divisions, and of that number 2,708 were upon the pay rolls for the week ending Jan. 28, 1897. The following table shows the classification of all the employees of the Street Department on the pay roll of Jan. 28, 1897.

#### Grade and Number of Employees.

TITLE.	DIVISIONS.								Total.
	Central Office.	Paving.	Sewer.	Sanitary.	Street Cleaning.	Ferry.	Bridge.	Street Watering.	
Superintendent .....	1	.....	.....	.....	.....	.....	.....	.....	1
Deputies .....	.....	1	1	1	1	1	1	1	7
Executive engineer .....	1	.....	.....	.....	.....	.....	.....	.....	1
Purchasing agent .....	1	.....	.....	.....	.....	.....	.....	.....	1
Clerks.....	2	7	10	3	1	2	1	.....	26
Foremen .....	.....	10	10	6	8	1	1	.....	36
Sub-foremen. ....	.....	25	14	13	16	.....	2	.....	70
Superintendent of inspectors (P. O.).....	.....	1	.....	.....	.....	.....	.....	.....	1
Inspectors .....	.....	20	36	10	.....	.....	.....	.....	66
Superintendent of street- patrol.....	.....	.....	-	.....	1	.....	.....	.....	1
Civil engineers .....	.....	1	7	.....	.....	.....	.....	.....	8
Draughtsmen .....	.....	.....	16	.....	.....	.....	.....	.....	16
Transitmen .....	.....	7	9	.....	.....	.....	.....	.....	16
Levelmen .....	.....	3	14	.....	.....	.....	.....	.....	17
Rodmen.....	.....	5	52	.....	.....	.....	.....	.....	57
Aid or tallymen.....	.....	1	.....	7	1	.....	.....	.....	9
Blacksmith and assistants....	.....	19	2	7	4	2	.....	.....	34
Boiler-makers .....	.....	.....	.....	.....	.....	2	.....	.....	2
Bracers .....	.....	.....	18	.....	.....	.....	.....	.....	18
<i>Carried forward.....</i>	5	100	189	47	32	8	5	1	387

## Grade and Number of Employees.—Continued.

TITLE.	DIVISIONS.								Total.
	Central Office.	Paving.	Sewer.	Sanitary.	Street Cleaning.	Ferry.	Bridge.	Street Watering.	
Brought forward.....	5	100	189	47	32	8	5	1	387
Brick-slingers .....			2						2
Boys .....	1	11	17		6		18	1	54
Broom-makers.. .....					5				5
Bridge-cleaners .....							2		2
Captains .....				1		11			12
Carpenters and assistants.....		19	9		3	5	11		47
Caulkers .....							1		1
Cement tester .....			1						1
Coal-passers .....			4						4
Chief of draws and bridges.. .....							1		1
Chief drawtender .....							1		1
Drawtenders .....							20		20
Assistant drawtenders .....							34		34
Deck-hands .....			2			25			27
Dumpers.....				19	5				24
Chief engineer .....				1					1
Engineers and assistants.....		15	25			11	18		69
Feeders .....				5					5
Firemen .....			4			20			24
Flushers .....			3						3
Gatemen .....			4			16			20
Harness-makers and assist- ants .....		3		4					7
Helpers .....				179	62				241
Horseshoers .....				6					6
Hostlers .....			5						5
Ironworker .....			1						1
Janitors .....			1			9			10
Janitresses .....						5			5
Laborers .....		482	317			7			806
Lamplighters .....						2			2
Ledgemen .....			93						93
Machinists.....			3			5			8
Carried forward.....	6	630	681	261	113	124	111	2	1,928

Grade and Number of Employees.—*Concluded.*

TITLE.	DIVISIONS.								Total.
	Central Office.	Paving.	Sewer.	Sanitary.	Street Cleaning.	Ferry.	Bridge.	Street Watering.	
Brought forward.....	6	630	681	261	113	124	111	2	1,928
Masons (stone and brick).....			32	.....	.....	.....	.....	.....	32
Masons' tenders.....			6	.....	.....	.....	.....	.....	6
Mate.....			1	.....	.....	.....	.....	.....	1
Measurers.....		2	.....	.....	.....	.....	.....	.....	2
Messengers.....	1	10	6	7	3	2	6	1	36
Oilers.....			7	.....	.....	4	.....	.....	11
Patch pavers and assistants.....		32	.....	.....	.....	.....	.....	.....	32
Painters.....				7	.....	1	5	.....	13
Pilots.....				1	.....	11	.....	.....	12
Pipe layers.....			2	.....	.....	.....	.....	.....	2
Powdermen.....		4	.....	.....	.....	.....	.....	.....	4
Riggers.....			1	.....	.....	.....	.....	.....	1
Scowmen.....				6	.....	.....	.....	.....	6
Steam drillers.....		7	2	.....	.....	.....	.....	.....	9
Stenographers.....	1	.....	.....	.....	.....	.....	.....	.....	1
Stonecutters.....		17	3	.....	.....	.....	.....	.....	20
Storekeepers.....			1	.....	.....	1	.....	.....	2
Sweepers.....					130	.....	.....	.....	130
Stablemen.....		11	6	6	4	.....	.....	.....	27
Teamsters.....		74	24	173	65	.....	2	.....	338
Tollmen.....						12	.....	.....	12
Watchmen.....		13	16	5	1	4	3	.....	42
Weighers.....		5	.....	.....	.....	.....	.....	.....	5
Wharfingers.....		3	1	.....	.....	.....	.....	.....	4
Wheelwrights.....				3	.....	.....	.....	.....	3
Yardmen.....		7	2	18	2	.....	.....	.....	29
Totals.....	8	815	792	486	318	159	127	3	2,708

The report of the Executive Engineer, which follows, alludes to the work of the Central Office, and includes a statement of the general finances of the department, with appropriations and expenditure from loans for special work, statistics of paved streets, together with a valuable table of prices that obtained upon a contract basis.

Attention is also called to the general work of the divisions, under the special division headings following.

#### SUMMARY OF WORK DONE.

The principal features of the work of the year may be summarized as follows:

##### BRIDGE DIVISION.

Overhauled and repaired deck, sheathing, and machinery of the following tide-water bridges: Broadway, over Fort Point channel, Congress street, and Warren, and reconstructed the Essex-street bridge, between Brighton and Cambridge. Of the inland bridges, the most important repairs were made to the Albany-street bridge, Berkeley, over the Providence and Albany railroads, and Dartmouth bridge, while special work was done on Chelsea bridge, north, in rebuilding the draw, and general repairs and additions to racks, shafts, pinions, gears, etc., preparatory to use of electric motor for power.

Meridian-street bridge required a reconstruction of draw, renewing spur-shores, girder caps, fender guard, new deck, and the painting of both bridge and fence.

A new bridge was built over Geneva avenue by the New York, New Haven & Hartford Railroad Co., according to plans submitted and approved by this department, at a cost to the city of \$14,026.58.

Saratoga-street bridge was repaired where rendered unsafe by the action of ice and tide. Cottage-Farm bridge at Commonwealth avenue was completed, the roadway being finished with asphalt; a slight portion of sidewalk is yet to be topped.

A new public landing was built at Jeffries Point.

##### FERRY DIVISION.

The extra boat, so called, was run throughout the year. Two new ferry drops were built; repaired the middle pier at the Boston landing of the South Ferry; supplied the ferry drops with special hoisting motor operated by electricity, used for hauling heavy teams up the drop; and supplied an illuminated clock for the North Ferry head-house, Boston side, beside doing an unusual amount of painting and overhauling, the details being given in the Deputy Superintendent's report.

## PAVING DIVISION.

Established two new stone crushing plants.

Paved with granite blocks and regulated some 45 streets, six of which were laid on a concrete base, covering 108,952 square yards of block paving in roadway, and 69,800 square yards of gutter paving. Over 2,000,000 new paving blocks were used during the season.

Paved sixteen short streets with asphalt, and two long stretches of boulevards, involving 24,782 square yards of Trinidad lake asphalt and 26,717 square yards of Sicilian rock asphalt, all on concrete foundation, and increasing the asphalt surface by 51,500 square yards.

Furnishing and setting 101,550 linear feet of new edge-stone as against about 50,000 feet for an ordinary year, and making a total length of edgestone set and reset of 227,991 linear feet.

Laying 13,647 square yards of artificial stone sidewalks.

Laying and relaying 117,492 square yards of brick paving.

Construction has been in progress on twenty-five streets laid out by the Board of Street Commissioners under chapter 323 of the Acts of 1891, and amendments relating thereto, beside the general construction of the four large boulevards mentioned elsewhere. Fifteen of these streets have been finished.

In connection with the work of the Paving Division the West End Street Railway Co. have paved over forty miles of track, over twenty-four miles of which required new blocks, laid under city inspection.

## SEWER DIVISION.—PUMPING STATION.

Built over twenty-nine miles of sewers, 346 catch-basins and drop inlets, repaired 381 catch-basins, and cleaned 6,041 catch-basins, removing therefrom about 20,550 cubic yards filthy material. Also built 474 linear feet of culverts. Six thousand four hundred and thirty-one cubic yards of sludge were received at the Improved Sewerage Pumping Station. There are now 444.47 miles of sewers in charge of this division.

## SANITARY DIVISION.

Collected and removed 363,975 loads of house dirt and ashes, and 56,402 loads of house offal.

## STREET CLEANING DIVISION.

Cleaned 12,080 miles of streets, removing 112,961 loads of dirt.

## STREET WATERING DIVISION.

Sprinkled 347.16 miles of streets during the season at a less cost than for any year since 1891.

In addition to this report, nine appendices are herewith submitted, in which will be found the report of the several Deputy Superintendents and Smoke Inspector, showing the expenditure of each division in detail; also the report of the City Engineer relative to work assigned to him by this department for either supervision or estimate. They are as follows:

- Appendix A — Bridge Division.  
" B — Ferry Division.  
" C — Paving Division.  
" D — Sanitary Division.  
" E — Sewer Division.  
" F — Street-Cleaning Division.  
" G — Street-Watering Division.  
" H — Street Construction, etc., assigned to the  
    City Engineer.  
" I — Smoke Inspector.  
" J — Former Superintendents and Document  
    Numbers.

Respectfully submitted,

BENJAMIN W. WELLS,

*Superintendent of Streets.*

## REPORT OF THE EXECUTIVE ENGINEER.

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BOSTON, Feb. 1, 1897.

Mr. BENJ. W. WELLS, *Superintendent of Streets:*

DEAR SIR: I herewith respectfully submit the annual report of the operations and expenses of the Street Department, the same being a full statement thereof for the year 1896.

Yours respectfully,

HENRY B. WOOD,

*Executive Engineer.*

## CENTRAL OFFICE DIVISION.

## EXPENSES OF THE CENTRAL OFFICE.

For the current expenses of the Central Office the City Council appropriated the sum of nineteen thousand dollars (\$19,000), which was expended as follows:

Salaries . . . . .	\$17,045 91
General office expenditures . . . . .	1,735 94
Total . . . . .	\$18,781 85

leaving a balance of two hundred eighteen dollars and fifteen cents (\$218.15), which was transferred to the Street Cleaning Division.

## **FINANCIAL STATEMENT OF THE STREET DEPARTMENT APPROPRIATION:**

From Feb. 1, 1896, to Jan. 31, 1897.

## Maintenance.

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CITY DOCUMENT No. 29.

APPROPRIATION.		Appropriations and transfers during 1896.	Revenue.	Total Credits.	Expenditures for the 12 months ending Jun. 31, 1897.	Balances Jan. 31, 1897.
Street Department:						
Central Office.....		\$18,781 55			\$18,781 55	
Bridge Division.....		13,963 13	\$870 42		2,1963 55	13,865 55
Boston and Cambridge Bridges.....		13,855 64			3,1855 54	13,855 64
Ferry Division.....		218,353 10			4,218,353 10	218,353 10
Paving Division.....		626,202 61	2,472 85		628,675 46	628,675 46
Sanitary Division.....		477,241 54			6,477,241 54	477,241 54
Sewer Division.....		276,615 25			7,276,615 25	276,615 25
Street Cleaning Division.....		310,266 39			8,310,266 39	310,266 39
Street Watering Division.....		71,211 81			9,71,211 81	71,211 81
Totals. ....		\$2,131,001 22	\$3,343 27	\$2,134,944 49	\$2,134,944 49	
Appropriation 1896-97.....		\$19,000 00				
Transferred to Street Cleaning Division.....		218 15				
		\$18,781 85				
Appropriation 1896-97.....		\$120,000 00				
Work done and paid for by Boston and Albany Railroad Co. ....		870 42				
		\$120,870 42				
		906 87				
Appropriation 1896-97.....		\$119,963 55				
Transferred to Street Cleaning Division.....						
		\$13,000 00				
		835 54				
		\$12,835 54				
Appropriation 1896-97.....		\$218,000 00				
Transferred from " Awning; " North Ferry, " South Drop, South Ferry, Boston side, " .....						
		257 06				
		96 09				
		—				
		253 15				
		\$218,253 15				
		0.05				
Appropriation 1896-97.....		218,353 10				
Transferred to Street Cleaning Division.....						
		\$630,000 00				
		2,472 85				
		\$632,472 85				
Appropriation 1896-97.....						
Transferred to Corporations .....						
		\$825 54				
		2,961 85				
		\$2,961 85				
		3,797 39				
		\$228,675 46				
Appropriation 1896-97.....						
Transferred to Boston and Cambridge Bridges, " Street Cleaning Division.....						
		\$825 54				
		2,961 85				
		\$2,961 85				
		3,797 39				
		\$228,675 46				
Appropriation 1896-97.....						
Transferred to Boston and Cambridge Bridges, " Street Cleaning Division.....						
		\$825 54				
		2,961 85				
		\$2,961 85				
		3,797 39				
		\$228,675 46				

Comparative Table showing Cost of Maintenance of the Street Department since Organization.

DIVISION.	1801-02. (13 months.)	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.
Central Office.....	\$16,050 00	\$18,793 90	\$20,805 96	\$20,884 29	\$18,315 79	\$18,781 85
Bridge.....	123,010 63	128,954 37	133,159 24	130,137 21	119,716 00	119,963 55
Boston and Cambridge Bridges.....	11,866 42	11,079 76	11,493 16	11,886 85	12,537 33	13,825 54
Ferry .....	.....	.....	.....	.....	209,911 30	218,353 10
Paving.....	872,936 40	915,460 99	745,681 52	715,608 62	683,899 42	628,675 46
Sanitary.....	2,509,342 24	463,370 74	481,300 63	467,159 02	432,778 52	477,241 54
Sewer.....	446,222 69	560,608 19	373,517 38	304,133 40	280,596 07	276,615 25
Street Cleaning .....	3215,929 33	288,320 42	308,707 30	301,477 44	305,998 50	310,266 39
Street Watering.....	104,263 62	94,507 80	99,430 16	87,169 08	76,424 70	71,211 81
Totals.....	\$2,299,621 33	\$2,457,055 87	\$2,174,095 35	\$2,038,855 91	* \$2,140,177 63	\$2,134,944 49

<sup>1</sup> Nine months only.<sup>2</sup> Includes street cleaning for four months to May 1, 1891.<sup>3</sup> Nine months only, but includes expenditure for Street Police, May 1 to July 10, 1891 — \$464.41.<sup>4</sup> For comparison, deduct Ferry Division, not before shown, making total — \$1,930,266.33.

**Bridge Division Specials.**

OBJECT OF APPROPRIATION.	Appropriations, Balances and Transfers.	Expended from Feb. 1, 1896, to Jan. 31, 1897.	Balances on hand Jan. 31, 1897.
Charles-river Bridge, draw.....	\$2,924 16	\$2,517 12	\$407 04
Chelesa Bridge, North, rebuilding, etc..	13,261 64	8,231 10	5,030 54
Chelesa-street Bridge, rebuilding, etc...	See note.		
Essex-street Bridge, reconstruction....	6,500 00	4,969 43	1,530 57
Gold-street Bridge.....	18,597 58	28 25	18,569 33
Meridian-street Bridge, reconstructing,	14,260 48	11,426 87	2,833 61
Totals.....	\$55,543 86	\$27,172 77	\$28,371 09

NOTE.—The balance on hand, \$4,260.48, Feb. 1, 1896, was transferred to the appropriation for Meridian-street Bridge.

**Ferry Division Specials.**

OBJECT OF APPROPRIATION.	Appropriations, Balances and Transfers.	Expended from Feb. 1, 1896, to Jan. 31, 1897.	Balances on hand Jan. 31, 1897.
Awning, North Ferry, East Boston side,	\$742 94	\$742 94	
New Ferry Landing (Chap. 435, Acts of 1895).....	500,000 00	21,961 61	\$478,038 39
South Drop, South Ferry, Boston side..	See note.		
Totals.....	\$500,742 94	\$22,704 55	\$478,038 39

NOTE.—The balance on hand, Feb. 1, 1896, \$96.09, was transferred to the appropriation for Ferry Division "Clock for Head-house."

**Paving Division Specials.**

OBJECT OF APPROPRIATION.	Appropriations, Balances and Transfers.	Expended from Feb. 1, 1896, to Jan. 31, 1897.	Balances on hand Jan. 31, 1897.
Adams st., Ward 24.....	\$7,500 00	.....	\$7,500 00
Adelaide st., Ward 22.....	4,000 00	.....	4,000 00
Arklow st.....	635 20	.....	635 20
Bennington and Walley sts.....	11,924 90	\$11,924 90	
Brooks st., Ward 25.....	25,000 00	.....	25,000 00
Bunker Hill st.....	366 19	.....	366 19
Carleton st., Ward 10.....	8,000 00	.....	8,000 00
Centre st., Dorchester.....	8,000 00	867 10	7,132 90
<i>Carried forward</i> .....	\$65,426 29	\$12,792 00	\$52,634 29

**Paving Division Specials.—Concluded.**

OBJECT OF APPROPRIATION.	Appropriations, Balances and Transfers.	Expended from Feb. 1, 1896, to Jan. 31, 1897.	Balances on hand Jan. 31, 1897.
<i>Brought forward</i> .....	\$65,426 29	\$12,792 00	\$52,634 29
Centre st., Roxbury, from Hog Bridge to Day st. ....	5,000 00	.....	5,000 00
Columbus ave., Asphalt, from Massachusetts ave. to Northampton st. ....	7,100 00	7,100 00	
Commonwealth ave., Construction....	137,227 88	130,471 33	6,756 55
Congress and L sts. ....	10,566 78	7,608 17	2,958 61
Eleanor and Ridgemont sts., Ward 25..	716 36	110 85	605 51
Elmira st., Ward 25.....	1,000 00	1,000 00	
Franklin st., Ward 25.....	1,800 00	99 48	1,700 52
Freeport st., Ward 24.....	7,500 00	.....	7,500 00
Hanover st., Charter to Tileston st. ....	3,827 66	3,827 66	
Leicester st., Ward 25.....	2,000 00	2,000 00	
McLellan st., Old Road to White st. ....	5,756 40	4,056 84	1,699 56
Orleans st., Maverick to Gove st. ....	2,578 80	2,578 80	
Quincy st., Ward 4.....	14,138 00	8,419 18	5,718 82
Rand st., Roxbury.....	3,600 00	.....	3,600 00
Saratoga st., Filling.....	2,022 20	2,022 20	
State st., Paving.....	18,000 00	.....	18,000 00
Sydney st., Ward 20.....	7,500 00	436 40	7,063 60
Talbot ave., Dorchester ave. to Washington st. ....	2,171 62	2,171 62	
Tremont st., Lenox st. to Roxbury Crossing.....	25,000 00	9,501 26	15,498 74
Wall st., Paving.....	5,000 00	5,000 00	
Washington st., Eliot to Dover st. ....	35,000 00	.....	35,000 00
<i>Totals</i> .....	\$362,931 99	\$199,195 79	\$163,736 20

**Street Improvements.**

OBJECT OF APPROPRIATION.	Appropriations, Balances and Transfers.	Expended from Feb. 1, 1896, to Jan. 31, 1897.	Balances on hand Jan. 31, 1897.
Street Improvements, Old Wards 1 and 2....	\$16,296 95	\$16,296 95	
Street Improvements, Old Ward 3.....	13,006 81	13,006 81	
Street Improvements, Old Ward 4.....	1,643 16	1,643 16	
Street Improvements, Old Ward 5.....	5,125 85	5,125 85	
Street Improvements, Old Wards 9 and 10... .	5,850 24	5,850 24	
<i>Carried forward</i> .....	\$41,923 01	\$41,923 01	

**Street Improvements.—Concluded.**

OBJECT OF APPROPRIATION.	Appropriations, Balances and Transfers.	Expended from Feb. 1, 1896, to Jan. 31, 1897.	Balances on hand Jan. 31, 1897.
<i>Brought forward.....</i>	\$41,923 01	\$41,923 01	
Street Improvements, Old Ward 12.....	22,509 32	<sup>1</sup> 22,509 32	
Street Improvements, Old Ward 13.....	20,937 95	20,937 95	
Street Improvements, Old Wards 14 and 15.....	27,320 87	27,320 87	
Street Improvements, Old Ward 15.....	891 39	891 39	
Street Improvements, Old Ward 16.....	1,092 13	1,092 13	
Street Improvements, Old Wards 17 and 18.....	5,086 99	5,086 99	
Street Improvements, Old Wards 19 and 22.....	15,857 22	15,857 22	
Street Improvements, Old Ward 20.....	12,889 36	12,889 36	
Street Improvements, Old Ward 24.....	7,530 60	7,530 60	
Street Improvements, Old Ward 25.....	4,409 11	4,409 11	
Street Improvements, New Ward 1.....	25,000 00	24,851 84	\$148 16
Street Improvements, New Ward 2.....	29,621 20	29,283 92	337 28
Street Improvements, New Ward 3.....	25,000 00	7,227 61	17,772 39
Street Improvements, New Ward 4.....	25,000 00	11,530 61	13,469 39
Street Improvements, New Ward 5.....	25,000 00	24,467 48	532 52
Street Improvements, New Ward 6.....	25,860 86	24,698 36	1,162 50
Street Improvements, New Ward 7.....	28,069 85	25,000 00	3,069 85
Street Improvements, New Ward 8.....	27,670 13	24,280 84	3,389 29
Street Improvements, New Ward 9.....	38,525 95	23,916 01	14,609 94
Street Improvements, New Ward 10.....	25,000 00	22,924 99	2,075 01
Street Improvements, New Ward 11.....	25,000 00	23,275 63	1,724 37
Street Improvements, New Ward 12.....	25,000 00	19,882 77	5,117 23
Street Improvements, New Ward 13.....	25,000 00	14,882 15	10,117 85
Street Improvements, New Ward 14.....	25,000 00	10,472 11	14,527 89
Street Improvements, New Ward 15.....	25,000 00	10,153 64	14,846 36
Street Improvements, New Ward 16.....	25,000 00	15,267 17	9,732 83
Street Improvements, New Ward 17.....	25,000 00	25,000 00	
Street Improvements, New Ward 18.....	25,000 00	18,317 52	6,682 48
Street Improvements, New Ward 19.....	25,000 00	9,421 82	15,578 18
Street Improvements, New Ward 20.....	25,000 00	25,000 00	
Street Improvements, New Ward 21.....	25,000 00	20,426 59	4,573 41
Street Improvements, New Ward 22.....	25,000 00	23,308 63	1,691 37
Street Improvements, New Ward 23.....	50,000 00	50,000 00	
Street Improvements, New Ward 24.....	25,000 00	25,000 00	
Street Improvements, New Ward 25.....	25,000 00	8,862 47	16,137 53
Totals.....	\$835,195 94	\$677,900 11	\$157,295 83

<sup>1</sup> Draft of \$1,444.15 retained by Auditor.

**Sewer Division Specials.**

OBJECT OF APPROPRIATION.	Appropriations, Balances and Transfers.	Expended from Feb. 1, 1896 to Jan. 31, 1897.	Balances on hand Jan. 31, 1897.
Back Bay Outlet.....	\$5,000 00		\$5,000 00
Canal Street Relief Sewer .....	25,000 00	87,537 97	17,462 03
Connections with Metropolitan Sewer, Charlestown.....	23,000 00	2,369 64	20,636 36
Connections with Metropolitan Sewer, East Boston.....	25,000 00	5,874 33	19,125 67
D-Street Outlet and Relief Sewer, Dorchester ave., South Boston.....	23,000 00	.....	23,000 00
Forest-avenue Section, Temporary Sewer Outlet, etc.....	23,116 65	21,801 71	1,314 94
Pumping Station Improvements .....	10,000 00	5,017 75	4,982 25
Sewer Outlet, Porter st.....	16,000 00	.....	16,000 00
Sewer Outlet, Low Level, W. Roxbury Dist..	7,824 64	4,643 57	3,181 07
Sewers, South Boston.....	877 51	82 80	794 71
Sewer Outlets, South Boston.....	35,000 00	18,895 08	16,104 92
Shamrock-street Outlet.....	8,000 00	958 05	7,041 95
Storm Sewer, Cornwall and Washington sts., Ward 22.....	3,500 00	2,903 52	596 48
Stony Brook Damages.....	25 00	.....	25 00
Stony Brook Improvement.....	500,000 00	98,150 74	401,849 26
South Union Station (Chap. 516, Acts of 1896). . . . .		1,847 02	
<b>Totals . . . . .</b>	<b>\$705,343 80</b>	<b>\$170,082 18</b>	<b>\$537,114 64</b>

**Laying Out and Construction of Highways.***Expenditures.*

Sewer construction . . . . .	. . . . .	\$435,538 20
Street construction . . . . .	. . . . .	<sup>1</sup> 174,961 88
<b>Totals . . . . .</b>	<b>. . . . .</b>	<b>\$610,500 08</b>

<sup>1</sup> Drafts of \$380.00 retained by Auditor.

**Blue Hill and other Avenues.***Expenditures.*

OBJECT OF APPROPRIATION.	Street Construction.	Sewer Construction.	Totals.
Blue Hill ave.....	<sup>1</sup> \$170,319 56	\$63,714 00	\$234,033 56
Columbus ave.....	205,425 15	48,481 68	253,906 83
Commonwealth ave.....	<sup>2</sup> 49,628 73	15,467 49	65,096 22
Huntington ave.....	<sup>3</sup> 277,745 49	16,096 72	293,842 21
Totals.....	\$703,118 93	\$143,759 89	\$846,878 82

<sup>1</sup> Draft of \$800.00 retained by Auditor.<sup>2</sup> Draft of \$4,051.99 retained by Auditor.<sup>3</sup> Draft of \$919.19 retained by Auditor.**Recapitulation of Expenditures for the Twelve Months ending  
Jan. 31, 1897.**

OBJECT OF APPROPRIATION.	Current Expenses for the twelve months ending Jan. 31, 1897.	Special Appropriations.	Totals.
Street Department:			
Central Office .....	\$18,781 85	.....	\$18,781 85
Bridge Division.....	119,963 55	\$27,172 77	147,136 32
Boston and Cambridge Bridges .....	13,835 54	.....	13,835 54
Ferry Division.....	218,353 10	22,704 55	241,057 65
Paving Division .....	628,675 46	199,195 79	827,871 25
Sanitary Division.....	477,241 54	.....	477,241 54
Sewer Division .....	276,615 25	170,082 18	446,697 43
Street-Cleaning Division.....	310,266 39	.....	310,266 39
Street Watering Division.....	71,211 81	.....	71,211 81
Street Improvements .....	.....	677,900 11	677,900 11
Laying Out and Construction of Highways.....	.....	610,500 08	610,500 08
Blue Hill and other avenues .....	.....	846,878 82	846,878 82
Totals.....	\$2,134,944 49	\$2,554,434 30	\$4,689,378 79

**Street Building Under Chap. 323 of the Acts of 1891, or  
Special Acts or Amendments thereto.**

STREET.	Paving.	Sewer.	Totals.
Abbotsford st.....	\$4,777 42	\$179 85	\$4,957 27
Audubon Road.....	9,299 55	631 13	9,930 68
Bay State Road.....	7,722 79	119 36	7,842 15
Boylston st.....	11,516 65	21,464 02	32,980 67
Brighton ave.....	51,243 19	231 57	51,474 76
Chamberlain st.....	.....	910 77	910 77
Clinton st.....	6,942 71	842 36	7,785 07
Fenlon st.....	1,915 66	648 78	2,564 44
Fullerton st.....	.....	85 20	85 20
Gaylord st.....	.....	927 93	927 93
Geneva ave.....	17,249 19	4,597 48	21,846 67
Granby st.....	4,737 01	14 26	4,751 27
Greenbrier st.....	5,317 10	1,674 01	6,991 11
Harvard ave.....	2,498 39	139 96	2,638 35
Harvard st.....	1,224 39	.....	1,224 39
Ivy st.....	366 12	.....	366 12
Josephine st. ....	3,210 79	60 18	3,270 97
Kenmore st.....	48 71	.....	48 71
Lathriat ave.....	16,577 13	12,360 79	28,937 92
Morse st.....	2,086 09	375 26	2,461 35
Newbury st.....	66 70	.....	66 70
Norway st.....	1,460 87	.....	1,460 87
Parker st.....	1,192 51	.....	1,192 51
Peterborough st.....	5,869 98	.....	5,869 98
Ruggles st.....	5,017 34	5,218 93	10,236 27
Sherborn st.....	210 71	.....	210 71
St. Alphonsus st.....	7,276 14	618 16	7,894 30
St. Germain st.....	251 92	.....	251 92
Turner st.....	1,834 49	.....	1,834 49
Vancouver st.....	1,643 12	159 33	1,802 45
Wilder st.....	3,405 21	1,101 93	4,507 14
Wolcott st.....	.....	2,870 89	2,870 89
Totals.....	\$174,961 88	\$55,232 15	\$230,194 03

**List of Contracts from Feb. 1, 1896, to Jan. 31, 1897, made by the Street Department.**

**Paving-Blocks.**

CONTRACT.	Awarded to	Dated	Price per M. delivered on wharves.
Large paving-blocks, 300,000 .....	Lanesville Granite Co.	March 30, 1896.	\$48 24
Large paving-blocks, 300,000.....	Rockport Granite Co.	April 6, 1896.	48 24
Gutter paving-blocks 500,000.....	Rockport Granite Co.	April 21, 1896.	39 50

**Spruce Lumber.**

DISTRICT.	Awarded to	Dated	Price per ft. B. M.	Price for Planing per M. ft.
East Boston .....	Jewett Lumber Co.....	Feb. 24, 1896.	\$15 45	\$1 50
Charlestown.....	J. O. Wetherbee.....	"	15 70	1 00
South Boston .....	Curtis & Pope Lumber Co.,	"	15 25	0 95
Brighton.....	" "	"	15 25	0 95
Dorchester ....	" "	"	15 88	0 95
Roxbury.....	" "	"	15 45	0 95
West Roxbury.....	" "	"	16 00	0 95
City Proper.....	" "	"	15 25	0 95
Harvard Bridge, 170 M. Ft. B. M.....	G. W. Gale Lumber Co...	Sept. 2, 1896.	13 88	

**Beach Gravel.**

DISTRICT.	Awarded to	Dated	Price per ton.
City Wharves.....	J. P. O'Riorden.....	March 12, 1896.	\$0.57 $\frac{3}{4}$ delivered on wharves.

**Coal.**

CONTRACT.	Awarded to	Dated	Price per ton, 2,240 lbs.
1,500 tons, Pumping Station, Dorchester.....	L. G. Burnham & Co.....	Feb. 14, 1896.	\$3 15
1,500 tons, Pumping Station, Dorchester.....	L. G. Burnham & Co.....	May 25, 1896.	3 11
1,500 tons, Pumping Station, Dorchester.....	L. G. Burnham & Co.....	Oct. 16, 1896.	3 31
2,500 tons, Ferry Wharves..	John Morrison....	Feb. 5, 1896.	3 03
2,500 " "	L. G. Burnham & Co.....	April 11, 1896	3 28
3,000 " "	John Morrison....	Nov. 23, 1896.	3 31

**Iron Castings.**

CONTRACT.	Awarded to	Dated.	Price per 100 lbs.
Iron Castings .....	Osgood & Hart.....	March 16, 1896.	\$1 20

**Bank Gravel and Sand.**

CONTRACT.	Awarded to	Dated	PRICE.			
			Gravel.		Sand.	
			A.	B.	A.	B.
South Boston, District 1...	P. O'Riorden...	March 13, 1896..	\$1.49	\$0.73	\$1.49	\$0.73
Charlestown, District 3 ..	P. O'Riorden...	March 13, 1896..	1.73	0.80	1.60	0.80
City Proper, Districts 8, 9 and 10 .....	P. O'Riorden...	March 13, 1896..	1.49	0.75	1.60	0.70
East Boston, District 2....	L. F. Leary.....	March 13, 1896..	1.49	0.75	1.49	0.75
Brighton, District 4.....	W. Scollans.....	March 13, 1896..	1.70	0.85	1.80	0.90
West Roxbury, District 5,	J. Doonan.....	March 13, 1896..	0.90	0.45	0.90	0.45
Dorchester, District 6....	J. McGovern....	March 13, 1896..	1.32	0.66	1.59	0.80
Roxbury, District 7 .....	O. Nawn.....	March 13, 1896..	1.75	0.75	1.85	0.90

## EXPLANATION OF LETTERS.

A.—Double Loads.

B.—Single Loads.

**Paving Bricks (Sidewalks).**

DISTRICT.	Awarded to	Dated	Price per 1,000.
South Boston.....	W. C. Norcross Co. ....	April 23, 1896 .....	\$9.75
West Roxbury.....	W. C. Norcross Co. ....	April 23, 1896.....	11.00
Roxbury.....	W. C. Norcross Co.....	April 23, 1896.....	9.75
City Proper, Districts 8 and 9, .....	W. C. Norcross Co.....	April 23, 1896.....	9.50
East Boston.....	O. S. Foster.....	April 23, 1896.....	9.50
Charlestown.....	O. S. Foster.....	April 23, 1896.....	9.50
City Proper, District 10.....	O. S. Foster.....	April 23, 1896.....	9.50
Brighton.....	Parry Bros. & Co.....	April 23, 1896.....	10.40
Dorchester.....	F. A. Merriam & Co.....	April 23, 1896.....	9.85

**North River and Granite Flagging.**

CONTRACT.	Awarded to	Dated	PRICE PER SQ. FT.	
			On wharves.	On Streets.
North River. ....	J. J. Cuddihy.....	March 12, 1896.	\$0.29	\$0.31 $\frac{1}{2}$
Granite.....	Rockport Granite Co. ....	March 12, 1896.....	0.28 $\frac{3}{4}$	

**Special Edgestone.**

CONTRACT.	Awarded to	Dated	Price.
Furnishing about 10,000 lineal feet Special Edge-stone on Huntington ave., between Massachusetts ave. and Tremont st.,.....	A. Ford & Son.....	May 18, 1896.....	\$0.39 per lineal foot.

**Lease of Land, etc.**

CONTRACT.	Lessor.	Dated	Price.
Friats and docks for public landing, East Boston...	East Boston Dry Dock Co. ...	July 10, 1896.....	\$250 per year, payable quarterly.

**Lease of Ledge Lots, Quarrying Stone, etc.**

CONTRACT.	Lessor.	Dated	Terms.
Lease of ledge lot for quarrying and removing stone from Kenney st., near Day st. <sup>1</sup> .....	J. W. Kenney .....	March 12, 1895 .....	\$0.15 per ton.
Lease of ledge lot for quarrying and removing stone from Rosseter st. <sup>2</sup> .....	W. T. Emerson .....	March 12, 1895 .....	\$0.25 per ton.
Lease of ledge lot for quarrying and removing stone from Washington st., cor. of Townsend st.,	M. J. Kelley .....	March 25, 1896 .....	\$0.25 per ton.

<sup>1</sup> Extended Feb. 1, 1896, for three years.<sup>2</sup> Extended Feb. 1, 1896, for two years.

**Lease of Ledge Lots, Quarrying Stone, etc.—Concluded.**

CONTRACT.	LESSOR.	DATED	TERMS.
Lease of ledge lot for quarrying and removing stone from Heath st., near Day st. <sup>3</sup> .....	F. Bleiler.....	March 30, 1896 .....	\$0.20 per ton.
Lease of ledge lot for quarrying and removing stone from Centre st., between Allandale and Walter sts. <sup>4</sup> .....	John M. Minton.....	Aug. 1, 1896 .....	\$0.18 per ton.
Quarrying and delivering stone to Dimock-street crusher.....	H. P. Nawn .....	April 13, 1896 .....	\$0.80 per ton.
Quarrying, crushing and delivering stone from Savin Hill ave., near Grampian Way .....	J. McMorrow.....	June 1, 1896.....	\$1.65 per ton on streets in South Boston, 1.50 per ton on streets in Dorchester.
Quarrying and removing stone from ledge leased by city on Centre st., and delivering same on crusher platform.....	T. Minton .....	Sept. 1, 1896.....	\$0.70 per ton.
Quarrying and removing stone from city's ledge on Chestnut Hill ave., and delivering same on crusher platform.....	M. Kiernan.....	Sept. 10, 1896.....	\$0.70 per ton.

(3) Extended Jan. 30, 1897, for one year.

(4) Extended Jan. 30, 1897, for three years.

**Collecting and Removing Ashes.**

CONTRACT.	AWARDED TO	DATED	PRICE.
Meeting House Hill District.....	J. McShane .....	March 31, 1896.....	\$4,237 50 per year for 2 years,
East Boston District <sup>1</sup> , .....	W. F. Hedrington.....	July 3, 1896.....	7,300 00 " / from Aug. 1, 1896 to Feb. 1, 1898.

<sup>1</sup> This contract expired Feb. 1, 1896, but was extended to July 31, 1896, when new contract was awarded.

## Bridge Strengthening and Miscellaneous Work.

CONTRACT.	Awarded to	Dated	Price.
Steel Superstructure, Southerly Section, Cottage Farm bridge.....	Boston Bridge Works.....	April 11, 1896. ....	\$2,400.00
Laying 12 <sup>t</sup> steel beams at Cottage Farm bridge, Northerly Section.....	E. B. Badger & Sons. ....	April 9, 1896. ....	\$1,647.00
Laying brick arches and cement concrete, Cottage Farm bridge, Northerly Section.....	Metropolitan Construction Co. ....	April 14, 1896. ....	\$2.00 per cu. yd. for concrete, \$1.800 for brick arches, etc.
Moving and placing steel beams on the abutments and pier of Cottage Farm bridge, Northerly Section.....	A. C. Richmond. ....	April 13, 1896. ....	\$1,900.00
Parapet, Cottage Farm bridge.....	Cape Ann Granite Co. ....	May 9, 1896. ....	\$2,125.00
Bearing Blocks, Cottage Farm bridge.....	Cape Ann Granite Co. ....	April 17, 1896. ....	\$227.96
Moving and placing steel beams on the abutments and pier of Cottage Farm bridge, Southerly Section.....	A. C. Richmond. ....	July 14, 1896. ....	\$1,400.00
Laying 91 <sup>t</sup> steel beams at Cottage Farm bridge, Southerly Section.....	E. B. Badger & Sons. ....	July 20, 1896. ....	\$655.50
One iron column for the extension of the Centre Pier, Cottage Farm bridge.....	Boston Bridge Works. ....	Aug. 1, 1896. ....	\$44.00
Laying brick arches and cement concrete, Cottage Farm bridge, Southerly Section. ....	Metropolitan Construction Co. ....	Aug. 28, 1896. ....	\$2.00 per cu. yd. for concrete, \$1.100 for brick arches, etc.
Artificial stone sidewalks and curb at Cottage Farm bridge.....	Simpson Bros. ....	Oct. 2, 1896. ....	\$0.25 per square foot for sidewalks ; \$0.60 per linear foot for curb.
Addition to North Abutment and extension of Centre Pier, Cottage Farm bridge. ....	A. C. Richmond. ....	July 7, 1896. ....	\$2,500.00,

## Bridge Strengthening and Miscellaneous Work.—Concluded.

CONTRACT.	Awarded to	Dated	Price.
Paving with Sicilian Rock Asphalt, Northerly roadway, Cottage Farm bridge.....	Boston Asphalt Company....	June 4, 1896.....	\$2.25 per square yard.
Paving with Sicilian Rock Asphalt, Southerly roadway, Cottage Farm bridge.....	Boston Asphalt Company....	Oct. 19, 1896.....	\$2.25 per square yard.
Raising the parapets coping and wing walls of the Huntington-ave. bridge over the B. & A.R.R.	W. L. Miller.....	April 11, 1896.....	\$1,271.00.
Building new fences, planking roadway, etc., Huntington-ave. bridge, over the B. & A.R.R.....	W. L. Miller.....	April 11, 1896.....	\$39.75 per M. Ft. B. M. hard pine ; \$1,691 for all other materials and labor, etc.
Paving with Sicilian Rock Asphalt, Side-walks of Huntington-ave. bridge.....	Boston Asphalt Company....	July 11, 1896.....	\$2.75 per square yard.
Replacing the wooden trusses of the draw, Meridian-st. bridge.....	W. H. Ellis.....	April 11, 1896.....	\$60.00 per M. Ft. B. M. timber. Extra work, actual, reasonable cost, plus 15%.
Replanking roadway, Harvard bridge.....	Josiah Shaw.....	Oct. 1, 1896.....	\$497.00.
Reconstruction of Essex-st. bridge, Ward 25 .....	W. S. Rendle.....	Oct. 14, 1896.....	(A) \$5,200.00 ; (B) \$15.00 per pile ; (C) \$33.00 per M. Ft. B. M. ; (D) \$31.00 per M. Ft. B. M.
Axles and wheels, Chelsea bridge, North.....	Atlantic Works.....	March 7, 1896.....	\$136.00.
Electric motor and apparatus for draw, Meridian-st. bridge .....	Lockwood Manufacturing Co. ....	Sept. 3, 1896 .....	\$1,535.00.

- (A) Furnishing all labor and materials for the regular part of the work.  
 (B) Furnishing, driving and fastening in place oak piles.

- (C) Furnishing and fastening in place double hard pine girder caps.  
 (D) Furnishing and fastening in place double hard pine riders.

<sup>1</sup> Artificial Stone Sidewalks.

CONTRACT.	Dated	Price.
Aberthaw Construction Company.....	April 29, 1896.....	6 cts. per square foot.
Bay State Artificial Stone Company.....	July 11, 1896.....	6 cts. per square foot.
E. L. Booth & Co.....	April 29, 1896.....	6 cts. per square foot.
Boston Paving Company .....	April 29, 1896.....	6 cts. 1 er square foot.
T. J. Hind .....	April 29, 1896.....	6 cts. per square foot.
W. A. Murtfeldt.....	April 29, 1896.....	6 cts. per square foot.
Simpson Bros.....	April 29, 1896.....	6 cts. per square foot.
M. Taylor, Jr.....	April 29, 1896.....	6 cts. per square foot.
J. Ufheil.....	April 29, 1896.....	6 cts. per square foot.

<sup>1</sup> These walks were laid on various accepted streets where the contractor had agreements with the abutters.

## Paving with Trinidad Asphalt.

CONTRACT.	Awarded to	Dated	Price.
Coming st., Washington st. to Shawmut ave.....	Barber Asphalt Paving Co..	May 25, 1896.....	(A) \$2.00 per square yard.
Pine st., Washington st. to Harrison ave.....	Barber Asphalt Paving Co..	June 18, 1896.....	(B) \$3.00 per square yard.
Laconia st., Washington st. to Harrison ave.....	Barber Asphalt Paving Co..	June 18, 1896.....	(B) \$3.00 per square yard.
Columbus ave., Massachusetts ave. to south line of Terry st.....	Barber Asphalt Paving Co..	July 15, 1896.....	(B) \$2.90 per square yard; (C) \$5.00 per cubic yard.
Water st., Liberty sq. to Broad st.....	Barber Asphalt Paving Co..	Aug. 8, 1896.....	(B) \$3.00 per square yard.
Battery March st., Liberty sq. to Milk st.....	Barber Asphalt Paving Co..	Aug. 8, 1896.....	(B) \$3.00 per square yard.

(A) Relaying old and furnishing new wearing surface on existing concrete base. (B) Furnishing concrete base and asphalt wearing surface.  
(C) Extra depth of American cement concrete base.

## Paving with Sicilian Rock Asphalt.

CONTRACT.	Awarded to	Dated	Price.
Hanover st., Charter to Thleston st.....	Boston Asphalt Co.....	May 14, 1896.....	(B) \$3.00 per square yard.
K st., Sixth to Eighth st.....	Boston Asphalt Co.....	May 20, 1896.....	(B) \$3.00 per square yard.
Taylor st., Dwight to Miford st.....	Boston Asphalt Co.....	May 29, 1896.....	(A) \$2.00 per square yard.
Ohio st., Washington st. to Shawmut ave.....	Boston Asphalt Co.....	July 8, 1896.....	(B) \$3.00 per square yard.
Meander st., Malden to E. Dedham st.....	Boston Asphalt Co.....	July 8, 1896.....	(B) \$3.00 per square yard.
Hamburg st., Mystic st. to Harrison ave.....	Boston Asphalt Co.....	July 8, 1896.....	(B) \$3.00 per square yard.
Mystic st., Malden to E. Brookline st.....	Boston Asphalt Co.....	July 8, 1896.....	(B) \$3.00 per square yard.
Norwich st., Mystic to Meander st.....	Boston Asphalt Co.....	July 8, 1896.....	(B) \$3.00 per square yard.
Huntington ave., from the P. & A. R.R. bridge to Gainsboro' st., minus the intersection at Massachusetts ave.....	Boston Asphalt Co.....	July 15, 1896.....	(B) 2.90 per square yard ; (C) \$5.00 per cubic yard.
Columbus ave., south line of Terry st. to a point 60' north of Station st.....	Boston Asphalt Co.....	July 15, 1896.....	(B) \$2.90 per square yard ; (C) \$5.00 per cubic yard.
Action st., Washington st. to Bradford st.....	Boston Asphalt Co.....	Oct. 12, 1896.....	(B) \$3.00 per square yard.

## EXPLANATION OF LETTERS.

- (A) Relaying old and furnishing new wearing surface on existing concrete base. (B) Furnishing concrete base and asphalt wearing surface.  
 (C) Extra depth of American cement concrete base.

## Paving and Regulating.

### STREET DEPARTMENT.

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CONTRACT.	Awarded to	Dated	Price.
Huntington ave., B. & A. R.R. Bridge to Massa- clustus ave., paving gutters, setting edgestones, laying brick sidewalks and crosswalks, etc.....	J. B. O'Rourke .....	June 8, 1896. ....	Paving gutters, \$0.20 per sq. yd.; setting edgestone, \$0.06 per lin. ft.; brick sidewalks, \$0.14 per sq. yd., crosswalks, \$0.20 per sq. yd.,
Devonshire st., State st. to Adams sq., having with granite blocks, pitch joints on concrete base .....	J. B. O'Rourke .....	June 29, 1896. ....	(B) \$5.00 per cubic yd.; (C) \$0.30 per sq. yd.; (D) \$0.08 per lin. ft.; (E) \$0.18 per sq. yd.
Milk st., Oliver to India st., paving with granite blocks, pitch joints on concrete base. ....	Jones & Meehan .....	Aug. 8, 1896. ....	(B) \$5.00 per cubic yd.; (C) \$0.30 per sq. yd.; (D) \$0.08 per lin. ft.; (E) \$0.18 per sq. yd.; (F) \$0.25 per sq. yd.
Winter st., Washington to Tremont st., paving with granite blocks, pitch joints on concrete base. ....	H. Gore & Co. ....	Aug. 29, 1896. ....	(B) \$5.00 per cubic yd.; (C) \$0.30 per sq. yd.; (D) \$0.08 per lin. ft.; (E) \$0.18 per sq. yd.; (F) \$0.25 per sq. yd.
Lowell st., Chaceway to Brighton st., paving with granite blocks, pitch joints on gravel base. ....	D. J. Kiley & Co. ....	Sept. 30, 1896. ....	(C) \$0.90 per sq. yd.; (D) \$0.08 per lin. ft.; (E) \$0.18 per sq. yd.; (F) \$0.25 per sq. yd.
Channey st., Sumner to Essex st., paving with granite blocks, pitch joints on concrete base... .	Metropolitan Construction Co. ....	Oct. 6, 1896. ....	(A) \$0.25 per sq. yd.; (B) \$5.00 per cubic yd.; (C) \$0.30 per sq. yd.; (D) \$0.15 per lin. ft.; (E) \$0.23 per sq. yd.; (F) \$0.25 per sq. yd.; (G) cost, plus 15%.
Columbius ave., Massachusetts to Tremont st., paving gutters, setting edgestones, laying brick sidewalks and crosswalks. ....	P. Doherty .....	July 24, 1896. ....	(D) \$0.05 per sq. yd.; (E) \$0.15 per lin. ft.; (F) \$0.18 per sq. yd.
Beach st., Washington st. to Harrison ave., paving with granite blocks, pitch joints on concrete base,	J. B. O'Rourke .....	Oct. 7, 1896. ....	(A) \$0.25 per sq. yd.; (B) \$5.00 per cubic yd.; (C) \$0.30 per sq. yd.; (D) \$0.15 per sq. yd.; (E) \$0.23 per sq. yd.; (F) \$0.25 per sq. yd.; (G) cost, plus 15%.

#### EXPLANATION OF LETTERS.

- (A) Barring up and loading pavement. (B) Furnishing and laying a 6-in. American cement concrete base. (C) Laying granite block paving, and pitching joints. (D) Resetting edgestones. (D 1) Resetting edgestones, including excavation. (E) Relaying brick sidewalks. (E 1) Relaying brick sidewalks, including excavation. (F) Laying granite block paving with gravel joints. (G) Raising manhole covers, catch-basin tops, etc., to grade.

**Excavating, Removing Material and Grading.**

CONTRACT.	Awarded to	Dated	Price.
Blue Hill ave., easterly side, parts of section 3, 4, and 5.....	Collins & Ham.....	June 22, 1896. ....	(A) \$0.39 per cubic yd., excavation, delivering, and grading material on Columbus ave., between Dimock st. and W. Walnut Plk.; (B) \$0.39 per cu. yd. excavation, delivering and grading material on Geneva ave., between the Shawmut Branch R.R. and Dorchester ave.; (D) \$0.30 per cu. yd., ledge excavation; (E) \$50.00, cutting down trees, etc.
Columbus ave., Massachusetts ave. to Camden st. ....	J. J. Sullivan.....	Sept. 24, 1896. ....	(A) \$0.25 per cu. yd., excavating and delivering material within three-fourths of a mile; (B) \$0.25 per cu. yd., removing gutter paving and delivering same within three-fourths of a mile haul.
Harvard st., formerly Back st. ....	J. McDonald.....	Oct. 22, 1896. ....	\$0.83 per cu. yd., grading with material in the street.

**Street Construction, under Chap. 323 of the Acts of 1891, or Special Acts or Amendments thereto.**

*Macadam Roads.*

CONTRACT.	Awarded to	Dated	Price.
Bay State road, Sherborn to Granby st. ....	Quimby & Ferguson.....	April 18, 1896. ....	(A) \$0.38; (C) \$0.27; (D) \$2.10; (F) \$0.22; (H) \$0.27; (M) \$0.78.
Granby st., Commonwealth ave. to Charles river..	Quimby & Ferguson .....	April 18, 1896. ....	(A) \$0.38; (C) \$0.27; (D) \$2.10; (F) \$0.22; (H) \$0.27; (J) \$4.10; (M) \$0.78.
Josephine st., Geneva ave. to Ditson st. ....	J. J. Nawn.....	April 18, 1896. ....	(A) \$0.22; (C) \$0.17; (D) \$1.95; (F) \$0.20; (H) \$0.30; (J) \$4.30; (M) \$0.30.

Street Construction under Chap. 323 of the Acts of 1891.—Concluded.  
Macadam Roads.

CONTRACT.	Awarded to	Dated	Price.
Abbotsford st., Walnut ave. to Harold st. ....	Quimby & Ferguson .....	May 14, 1896. ....	(A) \$0.38; (C) \$0.26; (D) \$0.33; (F) \$0.24; (H) \$0.26; (J) \$4.25; (L) \$2.00.
Greenbrier st., Bowdoin to Bloomfield st. ....	Quimby & Ferguson .....	May 14, 1896. ....	(A) \$0.32; (C) \$0.22; (D) \$2.15; (F) \$0.24; (H) \$0.22; (J) \$4.25; (M) \$0.75; (N) \$25.00.
St. Alphonus st., Tremont to Calumet st. ....	Quimby & Ferguson .....	May 14, 1896. ....	(A) \$0.38; (C) \$0.27; (D) \$0.32; (F) \$0.24; (H) \$0.22; (J) \$4.25; (L) \$1.80; (M) \$0.75; (P) \$839.
Morse st., Washington st. to Bowdoin ave. ....	D. E. Lynch .....	Sept. 24, 1896. ....	(A) \$0.28; (C) \$0.17; (D) \$0.65; (F) \$0.14; (H) \$0.25; (J) \$4.50; (M) \$0.30.
Fenelon st., Washington to Merrill st. ....	D. E. Lynch .....	Sept. 24, 1896. ....	(A) \$0.28; (C) \$0.17; (D) \$0.65; (F) \$0.25; (H) \$0.25; (J) \$4.50; (M) \$0.30.
Wilder st., Washington st. to Geneva ave. ....	T. F. Finneran and M. J. O'Hearn .....	Sept. 26, 1896. ....	(A) \$0.23; (C) \$0.18; (D) \$0.60; (F) \$0.20; (H) \$0.25; (J) \$5.00; (M) \$1.00.
Lauriat ave., Blue Hill ave. to Tucker st. ....	Doherty & Connors .....	Sept. 22, 1896. ....	(A) \$0.29; (C) \$0.23; (D) \$0.54; (F) \$0.25; (H) \$0.23; (J) \$4.50; (M) \$0.61.
Boylston st., Boylston road to Brookline ave. ....	N. McBride .....	Oct. 17, 1896. ....	(A) \$0.20; (C) \$0.20; (D) \$0.20; (F) \$0.20; (H) \$0.20; (J) \$5.00; (M) \$0.30.
Geneva ave., Westville st. to Dorchester ave. ....	T. F. Finneran and M. J. O'Hearn .....	Nov. 9, 1896. ....	(A) \$0.32; (C) \$0.18; (D) \$0.27; (F) \$0.18; (H) \$0.22; (J) \$4.30; (M) \$0.73.

EXPLANATION OF LETTERS.

(A) Sub-strading per cu. yd. (C) Macadam (placed) per sq. yd. (D) Granite block gutters furnished and laid per sq. yd. (F) Setting edgestones per in. ft. (H) Furnishing and laying gravel sidewalks, etc. (I) Ledge excavation per cu. yd. (L) Ledge furnished per cu. yd. (M) Gravel furnished per cu. yd. (N) Removing stone-walls, etc.

**Street Construction under Chap. 323 of the Acts of 1891, or Special Acts or Amendments thereto.**  
*Telford Macadam Roads.*

CONTRACT.	Awarded to	Dated	Price.
Commonwealth avenue extension, Chestnut Hill ave., to the Newton line.....	J. A. Whittemore's Sons.....	May 4, 1896.....	(A) \$0.25; (B) \$0.15; (C) \$0.16; (D) \$0.70; (E) \$0.10; (H) \$0.20; (J) \$5.00; (L) \$1.00; (M) \$0.40; (NN) \$0.20; (F) \$0.30;
Blue Hill ave., Seaver to Washington st.....	D. E. Lynch.....	June 2, 1896.....	(A) \$0.40; (B) \$0.31; (C) \$0.15; (D) \$0.65; (F) \$0.29; (H) \$0.30; (J) \$4.50; (M) \$0.50.
Huntington ave., Longwood ave., to the Brookline line .....	Doherty & Connors.....	June 2, 1896.....	(A) \$0.39; (B) \$0.21; (C) \$0.25; (D) \$0.45; (F) \$0.23; (G) \$0.44; (H) \$0.25; (J) \$4.50; (M) \$0.79; (N) \$25.00.
Audubon road, Beacon, across Ivy st.....	W. Scollars.....	June 19, 1896.....	(A) \$0.25; (B) \$0.37; (C) \$0.31; (D) \$0.58; (E) \$0.40; (F) \$0.30; (G) \$0.95; (J) \$4.25; (M) \$0.75.
Huntington ave., Gainsboro' st., across Longwood ave.....	H. Gore & Co.....	July 24, 1896.....	(A) \$0.25; (B) \$0.24; (C) \$0.19; (D) \$0.49; (F) \$0.17; (FF) \$0.15; (G) \$0.42; (H) \$0.30; (J) \$4.50; (M) \$0.75.
Columbus ave., West Walnut Park to Walnut ave., H. P. Nawn.....	Collins & Ham.....	Aug. 14, 1896.....	(A) \$0.45; (B) \$0.15; (C) \$0.07; (D) \$0.30; (F) \$0.14; (G) \$0.53; (H) \$0.30; (J) \$5.25; (M) \$0.50; (N) \$25.00;
Blue Hill ave., Canterbury st. to within 500' north of Lauriat ave.....	H. P. Nawn.....	Aug. 31, 1896.....	(A) \$0.40; (B) \$0.40; (C) \$0.15; (D) \$0.41; (F) \$0.61; (E) \$0.10; (F) \$0.20; (H) \$0.25; (J) \$4.50; (M) \$1.00; (I) \$0.50; (CC) \$0.0001.
Blue Hill ave. 500' north of Lauriat avenue to Walk Hill st .....	Doherty & Connors.....	Aug. 31, 1896.....	(A) \$0.27; (B) \$0.31; (BB) \$0.14; (C) \$0.25; (D) \$0.55; (B) \$0.11; (F) \$0.25; (H) \$0.27; (J) \$4.25; (M) \$0.60; (I) \$0.51.

**EXPLANATION OF LETTERS.**

(A) Sub-grading per cu. yd. (B) Telford base placed per sq. yd. (BB) Telford base, extra haul, per sq. yd. (CC) Macadam placed per sq. yd. (D) Granite block pavers laid per sq. yd. (E) Furnishing loan per sq. yd. (F) Setting edgestones per lin. ft. (FF) Setting special edgestones per lin. ft. (G) Brick sidewalks, laying per sq. yd. (H) Furnishing and laying gravel sidewalks per sq. yd. (I) 6-in. pipe-drain per lin. ft. (J) Furnishing and laying flagging crosswalks per sq. yd. (L) Ledge excavation per cu. yd. (M) Gravel furnished per cu. yd. (NN) Removing trees, stumps, etc. (NN) Loan rehauled per cu. yd. (P) Breaking and hauling stone per cu. yd.

# STREET DEPARTMENT.

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## Sewer Construction under Chap. 323 of the Acts of 1891, or Special Acts or Amendments thereto.

CONTRACT.	Awarded to	Dated	Price.
Sewer and connections, Blue Hill ave., Sect. 9 . . .	F. A. Snow, . . . . .	April 13, 1896 . . . . .	(D) \$0.45 per lin. ft. laying 12-in. pipe sewer; (E) \$0.15 per lin. ft. laying 12-in. pipe catch-basin drain; (F) \$0.15 per lin. ft. laying 10-in. pipe catch-basin drain; (G) \$35.00 each, manholes; (L) \$3.50 per cu. yd. rock excavation; (A.A.) \$30.00 each, catch-basins; (Z.Z.) \$10.00 each, drop inlets.
Sewer and connections, Commonwealth ave., Sect. 7 . . . . .	J. Dolan, . . . . .	April 18, 1896 . . . . .	(A) \$0.25 per cu. yd. earth excavation and refill for 10-in. pipe sewer; (B) \$0.10 per lin. ft. laying 10-in. pipe sewer; (C) \$34.00 each, manholes; (D) \$3.25 per cu. yd. rock excavation.
Sewer and connections, Audubon road, . . . . .	J. Dolan, . . . . .	April 18, 1896 . . . . .	(D) \$0.45 per lin. ft. 12-in. pipe sewer; (E) \$0.40 per lin. ft. 10-in. pipe catch-basin drain; (F) \$0.30 per lin. ft. 8-in. pipe house-drain; (K) \$30.00 each, manholes; (A.A.) \$45.00 each, catch-basins.
Sewer and connections, Commonwealth ave., Sect. 5 . . . . .	F. A. Snow, . . . . .	May 1, 1896 . . . . .	(A) \$0.20 per cu. yd. earth excavation and refill for sewer manholes, etc.; (B, C and D) \$0.10 per lin. ft. laying 10 and 12-in. pipe sewer and catch-basin drain; (E) \$10.00 manholes; (F) \$4.00 per cu. yd. rock excavation; (G) \$10.00 each, catch-basins; (P) \$10.00 each, drop inlets.
Sewer and connections, Blue Hill ave., Sect. 14 . . .	J. Dolan, . . . . .	May 29, 1896 . . . . .	(D) \$0.43 per lin. ft. 12-in. pipe sewer; (E) \$0.35 per lin. ft. 18-in. pipe catch-basin drain; (F) \$0.29 per lin. ft. 12-in. pipe catch-basin drain; (G) \$0.25 per lin. ft. 10-in. pipe catch-basin drain; (K) \$44.00 each, manholes; (L) \$3.12 per cu. yd. rock excavation; (A.A.) \$40.00 each, catch-basins; (Z.Z.) \$10.00 each, drop inlets.
Sewer and connections, Blue Hill ave., Sect. 16 . . .	J. P. O'Connell, . . . . .	June 13, 1896 . . . . .	(A) \$0.30 per lin. ft. earth excavation for 30-in. pine culvert; (B) \$0.30 per lin. ft. 30-in. pine culvert; (C) \$0.50 per lin. ft. 18-in. pipe catch-basin drain; (D) \$0.50 per lin. ft. 15-in. pipe catch-basin drain; (K) \$26.00 each, manholes; (L) \$3.00 per cu. yd. rock excavation; (N) \$3.00 per cu. yd. Portland cement concrete; (O) \$3.00 per cu. yd. American cement concrete; (P) \$3.00 per cu. yd. rubble stone masonry; (AA) \$40.00 each, catch-basins; (Z.Z.) \$12.00 each, drop inlets.

## Sewer Construction under Chap. 323 of the Acts of 1891, etc.—Continued.

CONTRACT.	Awarded to	Dated	Price.
Sewer and connections, Blue Hill ave., Sect. 7.... v <sup>o</sup>	J. P. O'Connell.....	June 30, 1896.....	(A, B and C) \$0.10 per lin. ft. laying 10 and 12-in. pipe sewer and catch-basin drain; (D) \$26.00 each, manholes; (E) \$0.50 per cu. yd. loose rock excavation; (F) \$3.00 per cu. yd. solid rock excavation; (G) \$0.50 per cu. yd. earth excavation for 10 and 12-in. pipe sewer, etc.; (A.A) \$32.00 each, catch-basin; (Z.Z) \$10.00 each, drop inlets.
Sewer and connections, Blue Hill ave., Sect. 13....	T. H. Connolly.....	July 9, 1896.....	(A) \$0.10 per lin. ft. laying 12-in. pipe sewer; (B, C, D, E, F) \$0.10 per lin. ft. laying 10, 12, 15, 18 and 20-inch pipe catch-basin drain; (K) \$35.00 each, manholes; (L) \$0.50 per cu. yd. loose rock excavation; (M) \$2.50 per cu. yd. solid rock excavation; (N) \$0.25 per cu. yd. earth excavation for pipe sewer and catch-basin drain; (A.A) \$36.00 each, catch-basins; (Z.Z) \$20.00 each, drop inlets.
Sewer and connections, Blue Hill ave., Sect. 15....	J. Dolan .....	July 16, 1896.....	(A) \$0.20 per lin. ft. laying 18-in. pipe sewer; (B and D) \$0.15 per lin. ft. laying 15-in. pipe sewer and catch-basin drain; (C and E) \$0.10 per lin. ft. laying 12-in. pipe sewer and catch-basin drain; (F) \$0.10 per lin. ft. laying 10-in. pipe catch-basin drain; (K) \$33.00 each manholes; (L) \$0.50 per cu. yd. loose rock excavation; (M) \$3.00 per cu. yd. solid rock excavation; (N) \$0.25 per cu. yd. earth excavation for pipe sewer and catch-basin drains; (A.A) \$31.00, each catch-basins; (Z.Z) \$7.00 each, drop inlets.
Sewer and connections, Geneva ave. and Park st., Ward 20.....	J. P. O'Connell .....	July 21, 1896.....	(D) \$0.35 per lin. ft. laying 12-in. pipe sewer; (E) \$0.40 per lin. ft. laying 15-in. pipe catch-basin drain; (F) \$0.35 per lin. ft. laying 12-in. pipe catch-basin drain; (K) \$30.00 each, manholes; (L) \$5.00 per cu. yd. rock excavation; (A.A) \$10.00 each, catch-basins; (B.B) \$0.35 per lin. ft. 6-in. pipe house drain.
Sewer and connections, Fenelon st., Ward 20.....	T. H. Connolly .....	July 21, 1896.....	(D) \$0.50 per lin. ft. 12-in. pipe sewer; (E) \$0.45 per lin. ft. 10-in. pipe catch-basin drain; (F) \$8.45 per lin. ft.

STREET DEPARTMENT.

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Sewer and connections, Morse st., Washington st. to Bowdoin ave.....	T. H. Connolly.....	July 21, 1896. ....	6-in. pipe house drain; (AA) \$38.00 each, catch-basins; (BB) \$8.00 each, pipe chimney. (D) \$0.45 per lin. ft.; 10-in. pipe, catch basin drain; (E) \$0.45 per lin. ft., 6-in. pipe, house drain; (AA) \$40.00 each, catch-basins.
Sewer and connections, Forest ave., trunk sewer, Sect. 1.....	T. H. Connolly.....	July 29, 1896. ....	(D) \$0.75 per lin. ft., laying 18-in. pipe sewer; (E) \$0.75 per lin. ft., laying 15-in. pipe sewer; (K) \$3.00 per cu. yd. manholes; (L) \$0.40 per cu. yd., loose rock excavation; (M) \$2.90 per cu. yd., solid rock excavation; (BB) \$8.00 each, 8-in. pipe chimneys.
Sewer and connections, Blue Hill ave., part of Sect. 4.....	T. J. Young & Co. ....	July 30, 1896. ....	(D) \$0.85 per lin. ft.; 12-in. pipe sewer; (K) \$35.00 each, manholes; (V) \$0.16 per lin. ft., 6-in. under-drain.
Stony Brook conduit, Columbus ave., Sect. 6.....	J. P. O'Connell. ....	Aug. 3, 1896. ....	Items (1) \$1.00 per cu. yd. for earth excavation, for conduit; (3) \$3.00 per cu. yd. for rock excavation; (4) \$3.80 per cu. yd. for concrete; (5) \$3.00 per cu. yd. for rubble stone masonry; (6) \$3.80 per cu. yd. for brick masonry, American cement mortar; (7) \$3.80 per cu. yd. for brick masonry, Portland cement mor- tar; (8) \$0.20 per lin. ft. for 10-in. pipe under-drain; (9) \$13.00 M. Ft. B. M. spruce lumber for sheeting and shoring, left in place; (10) \$30.00 M. Ft. B. M. spruce lumber for purposes other than sheeting and shoring and left in place; (12) \$700.00 protecting the channel of Stony brook.
Sewer and connections, Wilder st., Washington st. to Geneva ave.....	Collins & Ham.....	Aug. 13, 1896. ....	(A) \$1.00 per lin. ft. earth excavation for culvert and catch-basin drain; (B) \$0.20 per lin. ft. laying 2½-in. double-thick pipe culvert; (C) \$0.25 per lin. ft. laying 12-in. pipe catch-basin drain; (D) \$0.35 per lin. ft. laying 10-in. pipe catch-basin drain; (E) \$0.35 per lin. ft. laying 6-in. pipe house-drain; (O) \$5.50 per cu. yd. concrete; (AA) \$37.00 each, catch-basins; (ZZ) \$15.00 each, drop-inlets.
Sewer and connections, Clinton st., Ward 6.....	D. E. Lynch. ....	Aug. 14, 1896. ....	(D) \$1.00 per lin. ft. laying 12-in. pipe sewer; (E) \$0.50 per lin. ft. laying 10-in. pipe catch-basin drain; (F) \$0.46 per lin. ft. laying 6-in. pipe house-drain; (K) \$35.00 each, manholes; (O) \$4.50 per cu. yd. rock excavation; (R) \$25.00 per M. Ft. B. M. spruce lumber left in place; (AA) \$33.00 each, catch-basins.

## Sewer Construction under Chap. 323 of the Acts of 1891, etc.—Continued.

CONTRACT.	Awarded to.	Dated.	Prices.
Sewer and connections, Chamberlain st. .......	J. H. O'Donnell.....	Aug. 18, 1896. ....	(D) \$0.44 per lin. ft. laying 12-in. pipe sewer; (E) \$0.43 per lin. ft. laying 10-in. pipe catch-basin drain; (F) \$0.36 per lin. ft. laying 6-in. pipe house-drain; (K) \$35.00 each, manholes; (A.A) \$35.00 each, catch-basins.
Sewer and connections, Wolcott st., Ward 20.....	J. P. O'Connell.....	Aug. 21, 1896. ....	(A) \$0.70 per lin. ft. laying 30-in. pipe catch-basin drain; (B) \$0.40 per lin. ft. laying 24-in. pipe catch-basin drain; (C) \$0.30 per lin. ft. laying 12-in. pipe catch-basin drain; (D) \$0.30 per lin. ft. laying 10-in. pipe catch-basin drain; (E) \$0.40 per lin. ft. laying 6-in. pipe house-drain; (K) \$22.00 each, manholes; (L) \$3.00 per cu. yd. rock; (A.A) \$35.00 each, catch-basins; (Z.Z) \$12.00 each, drop inlets.
Sewer and connections, Gaylord st., Ward 20.....	J. Dolan.....	Sept. 4, 1896. ....	(D) \$0.58 per lin. ft. laying 12-in. pipe sewer; (E) \$0.25 per lin. ft. laying 10-in. pipe catch-basin drain; (F) \$0.30 per lin. ft. laying 6-in. pipe house-drain; (K) \$33.00 each, manholes; (A.A) \$40.00 each, catch-basins.
Catch-basin drain and connections, Boylston st., Ward 22 .....	J. H. O'Donnell.....	Sept. 8, 1896. ....	(A) \$0.40 per lin. ft. laying 24-in. pipe catch-basin drain; (B) \$0.40 per lin. ft. laying 18-in. pipe catch-basin drain; (C) \$0.38 per lin. ft. laying 15-in. pipe catch-basin drain; (D) \$0.35 per lin. ft. laying 12-in. pipe catch-basin drain; (E) \$0.30 per lin. ft. laying 10-in. pipe catch-basin drain; (G) \$2.75 per cu. yd. concrete; (H) \$20.00 per M. Ft. B. M. spruce number left in place; (L) \$1.00 each, drop inlets; (M) \$42.00 each, catch-basins; (O) \$0.50 per lin. ft., 30-in. pipe sewer.
Stony brook conduit, in Columbus ave., Sect. 5.....	H. P. Nawn.....	Oct. 7, 1896. ....	Items (1) \$1.00 per cu. yd. earth excavation for conduit; (2) \$2.00 per cu. yd. rock excavation; (4) \$4.00 per cu. yd. concrete in place; (5) \$6.00 per cu. yd. rubble stone masonry; (6) \$4.50 per cu. yd. brick masonry, American cement mortar; (7) \$7.00 per cu. yd. brick masonry, Portland cement mortar; (8) \$0.50 per lin. ft. laying 10-in. pipe under-drain; (9) \$12.00 per M. Ft. B. M. spruce lumber for sheeting and per M. Ft. B. M. spruce lumber for sheeting and

## STREET DEPARTMENT.

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Sewer and connections, Ruggles st., Parker st. to Back Bay Fens.....	D. E. Lynch.....	Oct. 14, 1896.....	(A) \$1.13 per lin. ft. earth excavation for brick sewer; (B) \$4.00 per cu. yd. brick masonry American cement cement mortar; (D) \$5.00 per cu. yd. brick masonry Portland cement mortar; (E) \$4.00 per cu. yd. concrete; (F) \$28.00 per M. Ft. B. M. spruce lumber left in place; (K) \$0.20 per lin. ft. spruce piles driven.	shoring left in place; (10) \$100.00 protecting the channel of Stony brook; (11) \$25.00 per M. Ft. B. M. spruce lumber for purposes other than sheeting and shoring.
Sewer and connections, Vancouver st., Ruggles st. to Huntington ave.....	D. E. Lynch.....	Oct. 14, 1896.....	(A) \$0.98 per lin. ft. earth excavation for brick sewer; (C) \$4.00 per cu. yd. brick masonry American cement cement mortar; (D) \$5.00 per cu. yd. brick masonry Portland cement mortar; (E) \$4.00 per cu. yd. concrete; (F) \$28.00 per M. Ft. B. M. spruce lumber left in place; (K) \$0.20 per lin. ft. spruce piles driven.	(A) \$0.98 per lin. ft. earth excavation for brick sewer; (C) \$4.00 per cu. yd. brick masonry American cement cement mortar; (D) \$5.00 per cu. yd. brick masonry Portland cement mortar; (E) \$4.00 per cu. yd. concrete; (F) \$28.00 per M. Ft. B. M. spruce lumber left in place; (K) \$0.20 per lin. ft. spruce piles driven.
Sewer and connections, Columbus ave., Sect. 8.....	T. O'Leary.....	Oct. 29, 1896.....	(A) \$1.08 per lin. ft. earth excavation for 3 ft. 6 in. $\times$ 4 ft. 10 in. brick sewer; (B) \$0.75 per lin. ft. earth excavation for 2 ft. 4 in. $\times$ 3 ft. 6 in. brick sewer; (C) \$0.51 per lin. ft. laying 12-in. pipe sewer; (D) \$0.51 per lin. ft. laying 10-in. pipe catch-basin drain; (E) \$0.51 per lin. ft. laying 8-in. pipe catch-basin drain; (F) \$0.51 per lin. ft. laying 6-in. pipe house drain; (G) \$25.00 each, in manholes; (H) \$2.00 per cu. yd. rock excavation; (I) \$4.25 per cu. yd. brick masonry American cement mortar; (J) \$4.50 per cu. yd. brick masonry Portland cement mortar; (K) \$3.00 per cu. yd. rubble-stone masonry; (T) \$25.00 each, catch-basins.	(A) \$1.08 per lin. ft. earth excavation for 3 ft. 6 in. $\times$ 4 ft. 10 in. brick sewer; (B) \$0.75 per lin. ft. earth excavation for 2 ft. 4 in. $\times$ 3 ft. 6 in. brick sewer; (C) \$0.51 per lin. ft. laying 12-in. pipe sewer; (D) \$0.51 per lin. ft. laying 10-in. pipe catch-basin drain; (E) \$0.51 per lin. ft. laying 8-in. pipe catch-basin drain; (F) \$0.51 per lin. ft. laying 6-in. pipe house drain; (G) \$25.00 each, in manholes; (H) \$2.00 per cu. yd. rock excavation; (I) \$4.25 per cu. yd. brick masonry American cement mortar; (J) \$4.50 per cu. yd. brick masonry Portland cement mortar; (K) \$3.00 per cu. yd. rubble-stone masonry; (T) \$25.00 each, catch-basins.
Stony brook conduit, in Centre st. and private land, Roxbury.....	C. Linehan.....	Nov. 16, 1896.....	Items (1) \$0.80 per lin. ft. earth excavation for conduit; (2) \$1.88 per cu. yd. rock excavation; (4) \$3.00 per cu. yd. concrete; (5) \$3.00 per cu. yd. rubble stone masonry; (6) \$3.70 per cu. yd. brick masonry American cement mortar; (7) \$3.70 per cu. yd. brick masonry Portland cement mortar; (8) \$0.50 per lin. ft. 10-in. pipe under-drain; (9) \$22.00 per M. Ft. B. M. spruce lumber for sheeting and shoring left in place; (10) \$22.00 per M. Ft. B. M. spruce lumber for purpose, other than sheeting and shoring, left in place.	Items (1) \$0.80 per lin. ft. earth excavation for conduit; (2) \$1.88 per cu. yd. rock excavation; (4) \$3.00 per cu. yd. concrete; (5) \$3.00 per cu. yd. rubble stone masonry; (6) \$3.70 per cu. yd. brick masonry American cement mortar; (7) \$3.70 per cu. yd. brick masonry Portland cement mortar; (8) \$0.50 per lin. ft. 10-in. pipe under-drain; (9) \$22.00 per M. Ft. B. M. spruce lumber for sheeting and shoring left in place; (10) \$22.00 per M. Ft. B. M. spruce lumber for purpose, other than sheeting and shoring, left in place.

## Sewer Construction under Chap. 323 of the Acts of 1891, etc.—Concluded.

CONTRACT.	Awarded to	Dated	Price.
Sewer and connections, Blue Hill ave., Section 4 and part of Section 3 . . . . . *	D. M. Dwyer . . . . .	Nov. 5, 1896. . . . .	(D) \$0.45 per lin. ft. laying 12-in. pipe sewer; (E) \$0.28 per lin. ft. laying 10-in. pipe catch-basin drain; (F) \$0.45 per lin. ft. laying 8-in. pipe sewer; (K) \$35.00 each, manholes; (L) \$2.50 per cu. yd. rock excavation; (A) \$31.00 each, catch-basins.
Commonwealth-avenue outlet sewer, in private land, Brighton. . . . .	E. McHale & Co. . . . .	Dec. 28, 1896. . . . .	Items (1) \$0.40 per lin. ft. earth excavation for brick sewer; (2) \$2.00 per cu. yd. rock excavation; (4) \$4.00 per cu. yd. concrete; (5) \$4.20 per cu. yd. brick masonry, American cement mortar; (6) \$5.00 per cu. yd. brick masonry, Portland cement mortar; (7) \$0.15 per lin. ft. 6-in. pipe under-drain; (8) \$0.50 per lin. ft. 18-in. pipe sewer; (9) \$0.50 per lin. ft. 12-in. pipe sewer; (10) \$0.35 per lin. ft. 12-in. pipe surface drain; (11) \$0.35 per lin. ft. 12-in. pipe surface drain; (12) \$30.00 per M. Ft. B. M. spruce number for sheeting and shoring left in place; (13) \$30.00 per M. Ft. B. M. spruce number for purposes other than sheeting and shoring, left in place.
Sewer and connections in Fullerton st., Ward 22. . . . .	T. H. Connally . . . . .	Dec. 28, 1896. . . . .	(A) \$0.55 per lin. ft. laying 18-in. pipe-sewer; (B) \$0.55 per lin. ft. laying 12-in. pipe-sewer; (C, D) \$0.35 per lin. ft. laying 10 and 12 in. pipe catch-basin drain; (E) \$0.38 per lin. ft. laying 6-in. pipe house-drain; (F) \$32.00 each, manholes; (G) \$40.00 each, catch-basins; (H) \$3.00 per cu. yd. concrete; (I) \$0.14 per lin. ft. spruce piles driven; (J) \$21.00 per M. Ft. B. M. spruce number left in place.
Sewer in Columbus ave. over Stony brook conduit, between New Heath and Heath sts. . . . .	J. P. O'Connell . . . . .	Dec. 29, 1896. . . . .	\$0.70 per lin. ft. laying 10-in. pipe-sewer; \$18.00 each, manholes.

**Sewer Construction under the General Law, Chap. 402 of the Acts of 1892.**

**STREET DEPARTMENT.**

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CONTRACT.	Awarded to	Dated	Price.
Sewer and connections, Holton st., Ward 25.....	T. J. Young & Co. ....	June 22, 1896,....	(D) \$1.20 per lin. ft. laying 12-in. pipe-sewer; (K) \$40.00 each, manholes; (L) \$6.00 per cu. yd. rock excavation; (R) \$30.00 per M. Ft. B. M. spruce lumber left in place; (V) \$0.30 per lin. ft. 6-in. pipe under-drain.
Sewer and connections, Everett st., Ward 25.....	T. J. Young & Co. ....	July 1, 1896,....	(D) \$1.25 per lin. ft. laying 10-in. pipe-sewer; (K) \$45.00 each, manholes; (L) \$5.50 per cu. yd. rock excavation; (R) \$30.00 per M. Ft. B. M. spruce lumber left in place; (V) \$0.30 per lin. ft. 6-in. pipe under-drain.
Sewer and connections, Hobart st., Ward 25.....	T. J. Young & Co. ....	July 17, 1896,....	(D) \$1.20 per lin. ft. laying 12-in. pipe-sewer; (K) \$40.00 each, manholes; (L) \$5.00 per cu. yd. rock excavation; (R) \$30.00 per M. Ft. B. M. spruce lumber left in place; (V) \$0.30 per lin. ft. 6-in. pipe under-drain.
Sewer and connections, Hobart st., from Fan-euil st. to existing sewer.....	T. J. Young & Co. ....	Aug. 20, 1896,....	(D) \$1.30 per lin. ft. laying 12-in. pipe-sewer; (E) \$1.50 per lin. ft. laying 15-in. pipe-sewer; (K) \$45.00 each, manholes; (L) \$5.10 per cu. yd. rock excavation; (R) \$30.00 per M. Ft. B. M. spruce lumber left in place; (V) \$0.30 per lin. ft. 6-in. pipe under-drain.
Sewer and connections, North Harvard st., Coo-lidge to Cambridge st.....	T. J. Young & Co. ....	Oct. 8, 1896,....	(D) \$1.55 per lin. ft. laying 15-in. pipe sewer; (E) \$1.40 per lin. ft. laying 12-in. pipe sewer; (K) \$45.00 each, manholes; (L) \$6.00 per cu. yd. rock excavation; (R) \$30.00 per M. Ft. B. M. spruce lumber left in place; (V) \$0.30 per lin. ft. 6-in. pipe under-drain.
Sewer and connections, Liverpool st., Decatur st. to Central sq. ....	J. H. Ettridge .....	Oct. 13, 1896,....	(D) \$0.82 per lin. ft. laying 18-in. pipe sewer; (K) \$32.00 each, manholes; (L) \$5.00 per cu. yd. rock excavation; (R) \$0.10 per lin. ft. spruce lumber platform; (V) \$0.16 per lin. ft. 6-in. under-drain; (W) \$0.30 per sq. yd. paving over sewer trench.
Sewer and Connections, Rockland st., Mt. Vernon st. to Mt. Vernon ave.....	T. J. Young & Co. ....	Nov. 7, 1896,....	(D) \$0.85 per lin. ft. laying 12-in. pipe sewer; (K) \$43.00 each, manholes; (L) \$5.00 per cu. yd. rock excavation; (R) \$30.00 per M. Ft. B. M. spruce lumber left in place; (V) \$0.30 per lin. ft. 6-in. pipe under-drains.

## Sewer Construction under the General Law.—Concluded.

CONTRACT.	Awarded to	Dated	Price.
Sewer and connections, Meridian st., Condor st. to Chelsea bridge.....	P. Anderson .....	Nov. 23, 1896.....	(D) \$1.15 per lin. ft. laying 12-in. pipe sewer; (K) \$25.00 each, manholes; (L) \$8.00 per cu. yd. rock excavation; (M) \$0.30 per sq. yd. paving over sewer trench; (N) \$30.00 per M. Ft. B. M. spruce lumber left in place; (V) \$0.16 per fin. ft. 6-in. pipe under-drain.
Sewer and connections, Mt. Vernon ave., from Rockland st., westerly.....	T. J. Young & Co.....	Dec. 5, 1896.....	(D) \$0.85 per lin. ft. laying 12-in. pipe sewer; (K) \$40.00 each, manholes; (L) \$5.00 per cu. yd. rock excavation; (M) \$30.00 per M. Ft. B. M. spruce lumber left in place; (N) \$0.16 per fin. ft. 6-in. pipe under-drain.
Sewer and connections, Rockland st., from Mt. Vernon ave. to Jackson ave.....	T. J. Young & Co.....	Jan. 20, 1897.....	(D) \$1.05 per lin. ft. laying 12-in. pipe sewer; (K) \$40.00 each, manholes; (L) \$5.00 per cu. yd. rock excavation; (M) \$30.00 per M. Ft. B. M. spruce lumber left in place; (V) \$0.30 per fin. ft. 6-in. pipe under-drain.
Sewer and connections, South Russell st.....	S. Connally .....	Aug. 27, 1896.....	(A) \$0.89 per lin. ft. laying 12-in. pipe sewer; (B) \$0.16 per lin. ft. laying 6-in. pipe under-drain; (C) \$32.00 each, manholes; (D) \$7.00 per cu. yd. rock excavation.

## Ferry Drops, Tanks, etc.

CONTRACT.	Awarded to	Dated	Price.
Three ferry drops.....	W. McKie.....	Sept. 16, 1896.....	\$14,718.00
Repairing middle pier, South Ferry, Boston side..	W. H. Ellis & Co.....	Oct. 8, 1896.....	/ \$1,310.00
Two ferry tanks.....	J. M. Brooks.....	Oct. 7, 1896.....	\$3,500.00
Awning, North Ferry, East Boston side.....	W. H. Ellis & Co.....	June 5, 1896.....	\$638.94

**Pile-driving.**

CONTRACT.	Awarded to	Dated	Price.
B and Seventh sts. sewer, South Boston .....	W. S. Rendle.....	Sept. 30, 1896.....	\$1.75 per spruce pile. \$10.00 per oak pile.

**Furnishing Filling.**

CONTRACT.	Awarded to	Dated	Price.
Turner st., from Haviland to Astor st.....	Metropolitan Construction Company.....	April 4, 1896.....	\$0.50 per cubic yard.
Huntington ave., from Parker st., northerly .....	Metropolitan Construction Company.....	April 23, 1896.....	\$0.65 per cubic yard.
Vancouver st., from Ruggles st. to Huntington ave.....	Metropolitan Construction Company.....	May 20, 1896.....	\$0.65 per cubic yard.
Columbus ave., from Northampton st. to Roxbury Crossing.....	N. McBride.....	June 4, 1896.....	\$0.39 per cubic yard gravel.
Ruggles st., from Parker st. to the Back Bay Fens, Norway st., from Massachusetts ave. to Parker st., Bennington and Valley sts.....	Metropolitan Construction Company.....	June 12, 1896.....	\$0.65 per cubic yard.
Peterborough st., from Audubon road to Fairhaven st.....	J. H. Carter.....	July 13, 1896.....	\$0.50 per cubic yard.
	Boston & Albany R.R. Co.	Sept. 7, 1896.....	\$0.45 per load of 20 cubic feet.
		Oct. 20, 1896.....	\$0.51 per cubic yard.

## Miscellaneous Agreements.

AGREEMENT.	Awarded to	Dated	Price.
Edgestones for year 1896.....	Institutions Department.....	March 3, 1896.....	\$0.62 per lin. ft. on wharves.
Watering driveways in Marine Park and Dorchesterway.....	Street Department, Street Watering Division.....	April 11, 1896.....	Park Department agreed to pay \$500.00 for watering these driveways.
Bulkhead, Columbus ave.....	Trumbull & Ryan.....	April 22, 1896.....	\$727.00.
Capstone for sea-wall, Granby st.....	Trumbull & Ryan.....	May 18, 1896.....	\$5.00 per lin. ft.
Taking down and removing stone arch at Chestnut-Hill Reservoir driveway.....	W. L. Miller.....	June 16, 1896.....	\$874.00.
Building wall on Water Works land and Commonwealth ave. extension.....	J. A. Whittmore's Sons.....	July 6, 1896.....	\$1.00 per cu. yd. ledge; \$0.40 per cu. yd. earth; \$2.50 per cu. yd. building wall.
Changing the fence lines, etc., at the Martin School, Huntington ave.....	Donovan & Brock .....	July 14, 1896.....	\$1,800.00.
Furnishing and laying coal-tar concrete sidewalks on Brighton ave.....	Simpson Bros.....	July 25, 1896.....	\$110.00.
Clock in head-house, Boston side, North Ferry.....	Geo. M. Stevens. ....	Aug. 8, 1896.....	\$137.50.
Iron castings, pipes, hand-rails, drain-inlets, etc., St. Martin st., Charlestown.....	George T. McLaughlin & Co.	Aug. 20, 1896.....	\$310.00.
Building artificial stone steps, platforms, walls, etc., St. Martin st., Charlestown.....	Simpson Bros.....	Aug. 25, 1896.....	\$2,803.00.
Tearing down wooden building, Columbus ave, corner Weston st.....	A. A. Eiston & Co. ....	Sept. 4, 1896.....	\$180.00.
Tearing down wooden building, Pynchon st.....	A. A. Eiston & Co. ....	Sept. 10, 1896.....	\$150.00.

Furnishing, erecting and fitting, ready for use, bumping machines, Chapman and Lyons sis,			
Dorchester.....	J. H. Honghton.....	Sept. 25, 1896.....	\$2,821.00.
Electric railway motor, North Ferry, East Boston side .....	Chas. I. Albee.....	Oct. 10, 1896.....	\$638.00.
Gully-cleaner, Decarie Patent.....	Henry W. Atwater.....	Nov. 20, 1896.....	\$2,000.00.
Repairing old ferry-tank.....	W. McKie.....	Dec. 19, 1896.....	\$675.00.
Electric railway motor, North Ferry, Boston side.	Chas. I. Albee.....	Jan. 21, 1897.....	\$1,000.00.

**Full List of Streets now Paved with Trinidad Asphalt.**  
**City Proper.**

Name.	Limits.	Length.	Area.	Year Laid.
Albany st.....	East Concord st. to East Springfield st..	450	2,700	1884
Arch st. .... ..	Franklin st. to Milk st.....	426	1,267	1883-93
Ash st. .... ..	Bennet st. to Nassau st. .... ..	230	409	1887
Barton court.....	Brighton st. to Barton st. .... ..	134	186	1894
Batterymarch st..	Milk st. to Kilby st. .... ..	260	857	1881-96
Beacon st. .... ..	Charles st., across Arlington st ..	870	3,800	1891
Beacon st. .... ..	Dartmouth st. to within 150 ft. east of Gloucester st. .... ..	1,744	9,277	1892
Beacon st. .... ..	68 ft. west of Gloucester st. to Massachusetts ave. .... ..	1,019	5,391	1893
Bennet st. .... ..	90 ft. west of Harrison ave. to 162 ft. east of Washington st. .... ..	180	300	1887
Bond st. .... ..	Hanson st. to Milford st. .... ..	192	426	1895
Brattle sq.....	Brattle st. to Elm st. .... ..	281	670	1888
Brighton st. .... ..	Leverett st. to Allen st. .... ..	845	1,737	1892
Birmmer st. .... ..	Beacon st. to Pinckney st. .... ..	1,087	3,300	1895
Central st. .... ..	Broad st. to Kilby st. .... ..	313	869	1887
Chambers st. .... ..	Green st., across Poplar st. .... ..	460	1,061	1894
Chambers st. .... ..	Brlington st. to Charles st. .... ..	272	604	1895
Charter st. .... ..	Hanover st. to Unity st. .... ..	318	636	1894
Cherry st. .... ..	Washington st. to Shawmut ave. .... ..	334	594	1892
Clark st. .... ..	Hanover st. towards North st. .... ..	120	227	1892
Columbus ave. ...	Boston & Albany Railroad bridge, } across Massachusetts ave. .... .. } <td>3,505</td> <td>15,578</td> <td>1884-87 1888-91</td>	3,505	15,578	1884-87 1888-91
Columbus ave. .... ..	Massachusetts ave. to 301 ft. south of Camden st. .... ..	903	5,418	1896
Corning st. .... ..	Washington st. to Shawmut ave. .... ..	338	734	1896
Congress sq.....	State st. to Congress square .... ..	110	160	1883
Cooper st. .... ..	North Margin st. to Endicott st. .... ..	166	516	1887
Cooperst. .... ..	Endicott st. to Charlestown st. .... ..	200	600	1887
Court st. .... ..	Washington st. to Court square .... ..	231	642	1891
Court sq. .... ..	Court st. to Court st. .... ..	665	1,883	1881-94
Davis st. .... ..	Washington st. to Harrison ave. .... ..	323	646	1892
Dartmouth st. .... ..	Boylston st. to Newbury st. .... ..	266	2,058	1894
Doane st. .... ..	Kilby st. to Broad st. .... ..	312	624	1881
Edinboro' st. .... ..	Essex st. to Beach st. .... ..	470	924	1895
Endicott st. .... ..	Cooper st., across Thacher st. .... ..	312	1,005	1884
<i>Carried forward</i>		17,336	65,099	

**Streets Paved with Trinidad Asphalt. — Concluded.**  
**City Proper.**

Name.	Limits.	Length.	Area.	Year Laid.
<i>Brought forw'd.</i>		17,336	65,099	*
Exchange pl. ....	Congress st. to Kilby st. ....	244	678	1887
Groton st. ....	Washington st. to Shawmut ave. ....	335	558	1892
Hanover ave. ....	Hanover st. to North st. ....	307	266	1892
Harrison ave. ....	East Newton st. to East Springfield st. ....	928	2,681	1888-95
Harrison ave. ....	East Springfield st. to Roxbury line ....		130	1888-95
Hollis st. ....	Tremont st. towards Washington st. ....	276	521	1891
Hudson st. ....	Beach st. to within 90 ft. north of Curve (minus Kneeland and Harvard sts.) ....	1,407	3,938	1891
Kilby st. ....	State st. to Milk st. ....	648	2,628	1881
Laconia st. ....	Washington st. to Harrison ave. ....	330	727	1896
Malcolm st. ....	Mt. Vernon st. to Chestnut st. ....	261	290	1892
Massachusetts av.,	Columbus ave. to Tremont st. (southerly roadway) ....	267	1,621	1892
Massachusetts av.,	Tremont st. to Shawmut ave. (southerly roadway) ....	470	2,934	1892
Massachusetts av.,	Shawmut ave. to Washington st. (south- erly roadway) ....	180	994	1892
Moon st. ....	Between North sq. and Fleet st. ....	182	384	1891
North Bennet st. ....	Hanover st. to Salem st. ....	552	920	1883
North Margin st. ....	Thacher st. to Wiget st. ....	515	1,154	1895
Oxford st. ....	Beach st. to Essex st. ....	430	735	1895
Parmenter st. ....	Hanover st. to Salem st. ....	279	764	1893
Pinckney st. ....	Charles st., across Brimmer st. ....	271	723	1895
Pine st. ....	Washington st. to Harrison ave. ....	419	597	1896
Poplar st. ....	Chaubers st. to Charles st. ....	1,188	2,442	1887-92
Spring st. ....	Pop'ar st. to Leverett st. ....	447	908	1895
Stillman st. ....	Between Salem st. and Endicott st. ....	150	417	1892
Stoddard st. ....	Howard st. to Court st. ....	135	150	1892
Sun-court st. ....	North st. to Moon st. ....	151	218	1891
Thacher st. ....	Charlestown st. to Endicott st. ....	203	562	1892
Tileston st. ....	155 ft. west from Hanover st. to Salem st. ....	417	470	1887-95
Warrenton st. ....	Eliot st. to Tremont st. ....	670	1,587	1891
Warrenton st. ....	Shawmut ave. to Washington st. ....	468	910	1891
Water st. ....	Congress st., across Batterymarch st. ....	325	975	1889
Water st. ....	Liberty sq. to Broad st. ....	252	682	1896
Wiggin st. ....	North Bennet st. to Tileston st. ....	107	119	1887
		30,150	97,782	

**Streets Paved with Trinidad Asphalt.—Concluded.****Charlestown.**

Name.	Limits.	Length.	Area.	Year Laid.
Austin st. ....	Seminary pl. to Lawrence st. ....	144	421	1891

**South Boston.**

D st. ....	W. Fifth st. to Gold st. ....	126	448	1889
Rogers st. ....	Dorchester st. to Preble st. ....	360	480	1891
W. Sixth st. ....	West of C st. toward D st. ....	91	343	1887
E st. ....	W. Third st. to Bolton st. ....	111	419	1892
W. Third st. ....	153 feet west of E st., across E st. ....	185	769	1892
		873	2,459	

**Roxbury.**

Cabot st. ....	Tremont st. to Vernon st. ....	1,955	6,559	1891-92
Columbus ave. ....	From 301 feet S. of Camden st., across Terry st. ....	2,640	15,840	1896
		4,595	22,399	

**Streets Paved with Sicilian Rock Asphalt.****City Proper.**

Name.	Limits.	Length.	Area.	Year Laid.
Acton st. ....	Washington st. to Bradford st. ....	259	352	1896
Ash st. ....	Oak st., across Nassau st. ....	220	391	1895
Barton st. ....	Levelett st. to Milton st. ....	427	723	1895
Charles st. ....	Between Revere st. and Cambridge st. (In front of Eye and Ear Infirmary) ....	191	225	1895
Decatur st. ....	Washington st. to Harrison ave. ....	370	781	1892
Dwight st. ....	Shawmut ave. to Tremont st. ....	716	2,075	1893
Fabin st. ....	Newland st. to Ivanhoe st. ....	421	615	1895
Fay st. ....	Dover st. to Harrison ave. ....	318	560	1894
Hamburg st. ....	Mystic st. to Harrison ave. ....	383	597	1896
Hanover st. ....	Tileston st., across Charter st. ....	315	934	1896
Huntington ave. ....	Boston & Albany Railroad bridge to Cumberland st. ....	1,591	8,840	1896
<i>Carried forw'd,</i>	.....	5,211	16,093	

**Streets Paved with Sicilian Rock Asphalt.—Concluded.**  
City Proper.

Name.	Limits.	Length.	Area.	Year Laid.
Brought forw'd,	.....	5,211	16,093	
Mason st.....	From a point 213 feet south of West st., for a distance of 231 feet southerly.....	231	480	1894
Massachusetts ave.	Washington st. to Albany st. (southerly roadway).....	662	4,151	1894
Meander st.....	E. Dedham st. to Malden st.....	307	437	1896
Motte st.....	Washington st. to Harrison ave. ....	332	516	1892
Mystic st.....	Malden st. to E. Dedham st.....	204	226	1896
Mystic st.....	E. Dedham st. to E. Canton st.....	215	335	1896
Mystic st.....	E. Canton st. to E. Brookline st.....	216	337	1896
Norwich st. ....	Mystic st. to Meander st. ....	221	339	1896
Ohio st. ....	Washington st. to Shawmut ave.....	343	277	1896
Pemberton sq. ....	In front of Suffolk County Court-house..	323	1,365	1894
Prince st. ....	Hanover st. to Bennet ave. ....	293	654	1895
Taylor st. ....	Dwight st. to Milford st. ....	196	274	1896
Whitmore st. ....	Kneeland st. to Harvard st. ....	249	445	1895
		9,003	25,929	

## South Boston.

Athens st.....	B st. to C st. ....	515	746	1892
Athens st.....	W. Second st. to A st. ....	617	916	1895
K st. ....	E. Sixth st. to E. Eighth st. ....	566	1,083	1896
W. Broadway....	From 206 ft. east of easterly line of Dorchester ave. to A st. ....	350	1,944	1892
W. Broadway ....	Gardiner place to 150 feet easterly .....	150	648	1893
		2,198	5,337	

## Charlestown.

Warren st. ....	Winthrop st. to Soley st. ....	127	365	1895
-----------------	--------------------------------	-----	-----	------

## Roxbury.

Columbus ave. ....	Terry st. to within 61 feet north of Station st. ....	884	5,304	1896
Huntington ave... .	Easterly side of Cumberland st. to Massachusetts ave. ....	747	4,150	1896
Huntington ave... .	Massachusetts ave. to Gainsborough st.	587	3,372	1896
		2,218	12,826	

## Other Asphalt Streets.

Name.	Limits.	Length.	Area.	Year Laid.
Harris street, city proper.....	Hanover st. to North st., coaltar (Ayer),	294	425	
I st. South Boston,	E. Broadway to E. Fourth st., coal tar (Ayer).....	272	1,027	
		566	1,452	

## Summary.

Trinidad Asphalt....	Length, 35,762 ft. or 6.77 miles, or 123,061 sq. yds.							
Sicilian Rock Asphalt, "	13,546 " " 2.57 " " 44,457 " "							
Coal Tar Asphalt.....	" 566 " " 0.10 " " 1,452 " "							
Asphalt Blocks.....	" 4,009 " " 0.76 " " 13,827 " "							
Total.....	53,883 " " 10.20 " " 182,797 " "							

## Street Mileage.

The following table shows the length of public highways and the character of pavements, Feb. 1, 1897:—

DISTRICTS,	Sheet Asphalt.	Asphalt Blocks.	Block.	Brick.	Cobble.	Telford and Macadam.	Gravel.	Not graded.	Total.
In previous report ...	8.06	0.85	79.79	0.42	2.43	228.29	125.57	11.55	456.11
Feb. 1, 1897.									
City proper .... ..	7.47	0.76	*42.72	0.41	1.64	27.29	0.13	.....	80.42
Charlestown .....	0.05	.....	8.90	.....	.....	13.85	.....	0.04	22.84
East Boston.....	.....	.....	4.42	.....	0.14	6.13	16.43	.....	27.12
South Boston.....	0.63	.....	12.88	.....	*0.05	21.80	1.40	3.74	40.50
Roxbury .....	1.29	.....	8.24	.....	0.01	59.95	10.98	2.66	83.13
W. Roxbury.....	.....	.....	0.09	.....	.....	40.29	34.94	1.44	76.79
Dorchester.....	.....	.....	3.47	.....	.....	54.71	30.22	1.14	89.54
Brighton.....	.....	.....	.....	.....	.....	18.56	19.07	1.15	38.78
Total .....	9.44	0.76	80.72	0.41	1.84	242.58	113.20	10.17	459.12

NOTE.—The above districts refer to areas enclosed by the original boundary lines.  
\* Of this amount, 3.98 miles = granite-block paving on concrete base.

Total length of public streets, 459.12 miles.

There have been laid out and accepted by the Street Commissioners during the year, 2.893 linear miles; 2.294 square

feet have been discontinued; corrections to previous measurements on account of revision and correction of previous tables from all causes, show an increase of 0.117 miles; making a total net increase of 3.01 miles. Street widenings and relocations have been ordered to the extent of 38,477 square feet.

Not included in the above table, there are about 142 miles of private ways and alleys which are not under the care of this department.

The rate of increase from year to year is shown in the following table:—

1859.....	111.50 miles.	1884.....	374.10 miles.
1871.....	201.32 "	1885.....	379.60 "
1872.....	207.4 "	1886.....	383.55 "
1873.....	209.24 "	1887.....	390.30 "
1874.....	313.90 "	1888.....	392.72 "
1875.....	318.58 "	1889.....	397.84 "
1876.....	327.50 "	1890.....	404.6 "
1877.....	333.2 "	1891.....	409.6 "
1878.....	340.39 "	1892.....	434.59 "
1879.....	345.19 "	1893.....	443.34 "
1880.....	350.54 "	1894.....	447.65 "
1881.....	355.5 "	1895.....	452.12 "
1882.....	359.85 "	1896.....	456.11 "
1883.....	367.99 "	1897.....	459.12 "

#### Areas of Pavements.

The following table shows the area of pavements in square yards, arranged by districts:—

DISTRICTS.	Asphalt.	Block.	Brick.	Cobble.	Telford and Macadam.	Gravel.	Not graded.	Totals.
Feb. 1, 1896.....	132,702	1,718,050	5,166	28,504	4,182,438	2,062,394	316,517	8,445,871
Feb. 1, 1897.								
City Proper....	*137,963	†913,748	5,082	15,846	510,517	1,508	.....	1,584,664
Charlestown....	786	198,938	.....	.....	206,888	.....	1,073	407,685
East Boston....	101,144	.....	2,867	128,680	302,635	.....	.....	535,326
South Boston..	8,823	271,602	.....	1,192	379,216	27,976	77,857	766,666
Roxbury.....	35,225	178,484	.....	408	1,056,653	173,255	64,619	1,538,644
West Roxbury.....	2,067	.....	.....	.....	688,795	533,187	21,347	1,245,396
Dorchester.....	74,594	.....	.....	.....	962,365	501,328	59,760	1,598,047
Brighton.....	.....	.....	.....	.....	492,664	305,388	24,337	822,389
Total.....	182,797	1,740,577	5,082	20,313	4,455,778	1,845,277	245,993	8,498,817

\* Of this amount, 13,827 sq. yds. = asphalt blocks.

† Of this amount, 77,728 sq. yds. = granite-block paving on concrete base.

Total area of public streets, 8,498,817 square yards.

## INCOME.

Statement showing the amount of bills and cash deposited with City Collector, less bills withdrawn, for the year ending Jan. 31, 1897, by the several divisions of the Street Department:

Bridge Division . . . . .	\$4,998	65
Boston and Cambridge Bridges . . . . .	712	01
Ferry Division . . . . .	166,971	74
Paving Division . . . . .	38,616	32
Sanitary Division . . . . .	35,881	77
Sewer Division . . . . .	222,318	24
Street-Cleaning Division . . . . .	5,864	08
Street-Watering . . . . .	4,438	14
	<hr/>	
	\$479,800	95

Statement showing the amount paid into the city treasury during the same period on account of the several divisions of the Street Department:

Bridge Division . . . . .	\$2,702	32
Boston and Cambridge Bridges . . . . .	712	01
Ferry Division . . . . .	167,056	74
Paving Division . . . . .	76,652	34
Sanitary Division . . . . .	27,735	68
Sewer Division . . . . .	130,294	32
Street-Cleaning Division . . . . .	1,996	45
Street-Watering . . . . .	687	65
	<hr/>	
	\$407,887	51

APPENDIX A.

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REPORT OF THE DEPUTY SUPERINTENDENT OF  
THE BRIDGE DIVISION.

927 AND 928 TREMONT BUILDING,  
BOSTON, Feb. 1, 1897.

BENJ. W. WELLS, Esq., *Superintendent of Streets*:

DEAR SIR: I respectfully submit my annual report of the expenditures, income and operation of the Bridge Division of the Street Department for the financial year ending Jan. 31, 1897.

Respectfully yours,

W.M. H. CARBERRY,

*Deputy Superintendent.*

There was appropriated for the maintenance of this division during the year the sum of \$120,000. The total number of bridges in Boston is 132. This number does not include culverts.

Four of these bridges, viz., Harvard, Prison Point, Canal and West Boston, all connecting with Cambridge, are in the care of two commissioners, one of whom is appointed by the city of Boston and the other by the city of Cambridge.

Thirty-three are wholly supported by railroad corporations, and 99 are supported wholly or in part by the city of Boston.

There are 23 tide-water bridges provided with draws.

Six of these bridges are in the north district — three operated by steam, two by electricity and one by hand-power.

The division has this year constructed and put in operation an electric motor on Meridian-street bridge, at a cost of \$1,535. This new device for operating the bridge is a decided improvement over horse-power, which was formerly used.

It also gives better facilities for public travel.

On the south side there are six bridges. Three of these are operated by steam, two by electricity and one by hand-power.

The most important of these are the Malden and Mount Washington-avenue bridges, which are now operated by hand-power, and which should during the coming year be supplied with electric or steam-power.

Congress street, Broadway span over the railroad, Mount

Washington-avenue, Charles-river and Malden bridges require constant care, as they are old and patched. They should be rebuilt.

The draw on Broadway bridge has been reconstructed and adjusted so it can be reversed, for the first time in five years.

The smoke fenders which were attached to Dartmouth-street bridge, over the B. & A. R.R., and also on Broadway, over the N. Y., N. H. & H. R.R., were placed there in December, 1895.

After a few months' trial this division was requested by the above railroad corporations to remove the same, as they proved to be dangerous to the men operating the trains.

The fenders were removed in compliance with their request.

The temporary foot-bridge erected in 1895, over the N. Y., N. H. & H. R.R. at Roxbury Crossing, was removed in July, 1896, on account of the elevation of the tracks, in abolishing the grade crossings; also the one at Centre street, called Hog bridge, cared for by the same railroad.

The lumber used in this structure was removed to Foundry-street yard.

The headquarters for District No. 2, located at Foundry street, South Boston, is not a suitable place for office or storehouse, as it is altogether too small.

The following-named bridges, being in a most dangerous condition, were closed to public travel while extensive repairs were being carried on under the supervision of the City Engineer and this division:—

Meridian street, from May 28 to July 3.

Essex street, from Oct. 2 to Dec. 26.

Albany street, from Sept. 11 to Oct. 10.

Broadway, from Dec. 9 to Jan. 4.

An inspection of all inland bridges has been carefully made, and all necessary repairs have been promptly done to insure their safe condition.

Several of these bridges have been painted and all have been thoroughly swept at regular intervals and kept clean.

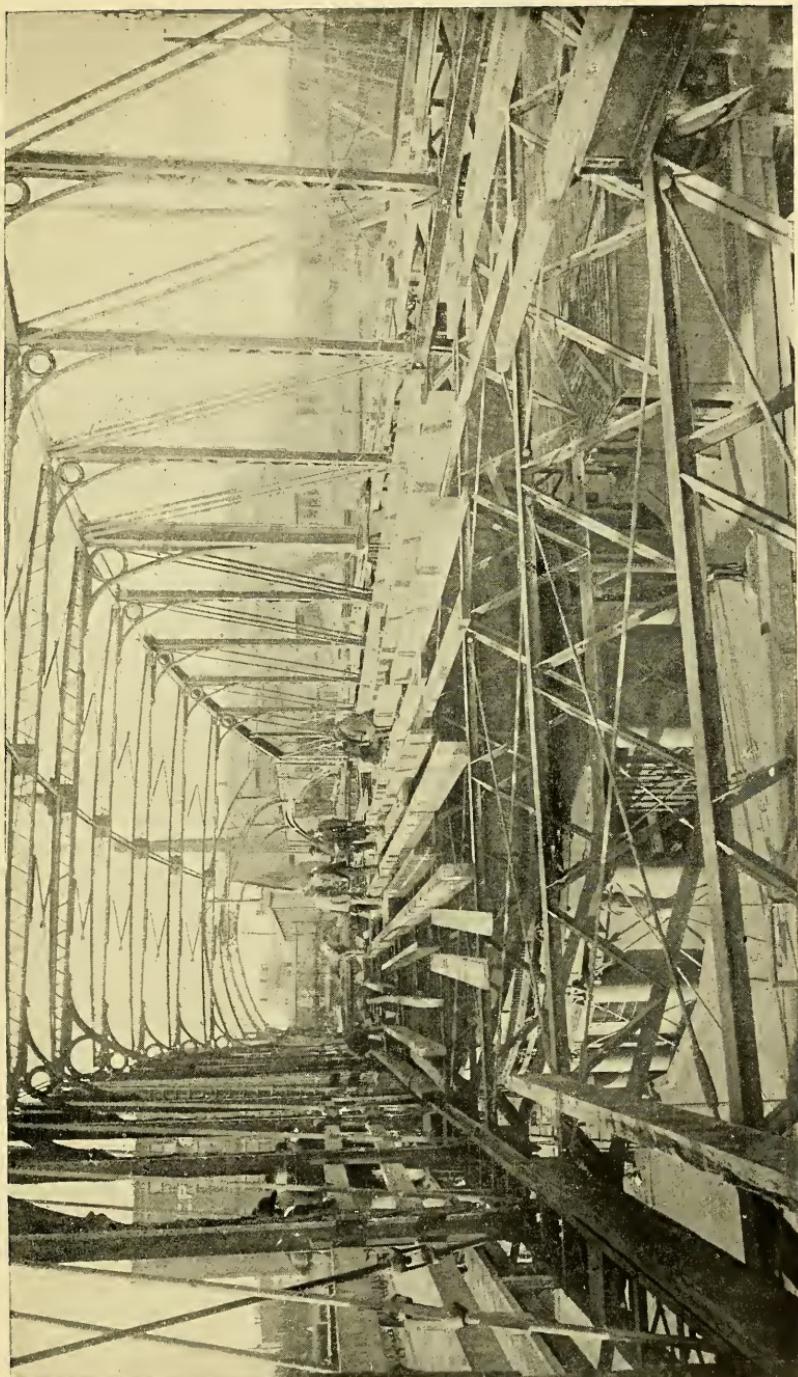
Better discipline has been maintained among the drawtenders by transferring some of them and placing them at the kind of work for which they seemed best adapted.

They have faithfully and efficiently performed their various duties, as have their assistants, and no accidents have been reported which could be attributed to any neglect, or inattention on the part of the employees.

All material bought and used in construction and repairs has been promptly delivered by the contractors.

A considerable saving in the item of lumber alone was made by the policy adopted of supplying the exact measurements and lengths required. Duplicate sets of gearing, truck wheels, cables, sprocket wheels, pinions, shafting and new patterns have been furnished the various bridges during the year.

BROADWAY BRIDGE.





The road-bed and one sidewalk of the Cottage Farm bridge over the B. & A. R.R. have been completed and reopened to public travel.

A new public landing at Jeffries Point, East Boston, has been constructed at an expense of \$700.

Inclosed in this report will be found a financial statement and a detailed description of the work performed on each bridge, also a tabulation of all bridges supported wholly or in part by the City of Boston, giving the widths of bridges, draw openings, roadways and sidewalks, the number of draw openings made for navigation, and a census of traffic taken on the most important bridges.

### OBJECT OF EXPENDITURES.

#### ADMINISTRATION.

Office expenses:	
Printing . . . . .	\$188 62
Stationery and postage . . . . .	89 63
Office books . . . . .	35 50
Engraving plates, etc., annual report . . . . .	55 38
Telephone . . . . .	166 33
Subscription (newspapers) . . . . .	10 50
Directory . . . . .	5 50
Atlas (West Roxbury) . . . . .	36 50
Messenger service . . . . .	1 40
Capillary bath . . . . .	6 00
Typewriter paper . . . . .	19 75
Repairing typewriter . . . . .	10 50
Index . . . . .	2 50
Repairing office stamp . . . . .	7 00
Repairing clocks . . . . .	11 00
Incandescent lamps . . . . .	1 87
Portable lamps . . . . .	7 00
Mats . . . . .	15 50
Fireboard . . . . .	3 50
Press-stand . . . . .	12 00
Repairing desk . . . . .	5 50
Baskets and cuspidores . . . . .	3 16
	_____
Salary of Wm. H. Carberry, Deputy Superintendent, $10\frac{7}{10}$ months . . . . .	\$694 64
Salary of John P. Wise, Deputy Superintendent, $1\frac{3}{10}$ months . . . . .	2,641 67
Salaries of Chief Clerk, Messenger, $3\frac{1}{2}\frac{6}{10}$ months, and Messenger, $8\frac{1}{2}\frac{4}{10}$ months . . . . .	358 33
Salaries of Chief of Draws and Bridges, $1\frac{2}{3}\frac{7}{10}$ months, and Chief of Draws and Bridges for 41 weeks, and foreman for 39 weeks, $5\frac{1}{2}$ days . . . . .	2,800 00
	_____
<i>Carried forward,</i>	\$9,638 27

<i>Brought forward,</i>	\$9,638 27
Salary of Chief Draw-Tender, 48 weeks . . . . .	1,656 96
Salary of Clerk of Committee on Streets and Sewers, 9 weeks . . . . .	258 84
Salary of Civil Service Clerk ( $\frac{1}{7}$ part) . . . . .	100 00
Travelling expenses . . . . .	44 50
Board of Deputy Superintendent's horse and extra horse . . . . .	413 99
Telephone, Deputy Superintendent's house . . . . .	52 56
Amount expended, administration . . . . .	<u>\$12,165 12</u>

## OBJECT OF EXPENDITURES.

*Office Expenses.*

Salaries . . . . .	\$10,959 43
General office expenditures . . . . .	1,205 69
	<u>\$12,165 12</u>

## TOTAL REGULAR EXPENDITURES.

Administration . . . . .	\$12,165 12
On tide-water bridges . . . . .	85,804 55
On inland bridges . . . . .	8,436 66
North yard and stable . . . . .	4,276 29
South yard and stable . . . . .	9,280 93
	<u>                        </u>

Total amount expended for the year, Feb. 1, 1896 to Jan. 31, 1897 . . . . . \$119,963 55

## FINANCIAL STATEMENT.

## REGULAR APPROPRIATION.

Appropriation, 1896-97 . . . . .	\$120,000 00
Received from Boston and Albany Railroad Company for work done on Albany-street bridge . . . . .	870 42
Total . . . . .	<u>\$120,870 42</u>

Amount of expenditures from Feb. 1, 1896 to Jan. 31, 1897 . . . . .	\$119,963 55
Transferred to Street Cleaning Division, Jan. 29, 1897 . . . . .	906 87
Total . . . . .	<u>\$120,870 42</u>

## FINANCIAL STATEMENT.

## SPECIAL APPROPRIATIONS IN CHARGE OF BRIDGE DIVISION.

OBJECT OF APPROPRIATION.	Appropriations, Balances and Transfers.	Expended from Feb. 1, 1896, to Jan. 31, 1897.	Balances on hand Jan. 31, 1897.
Charles-river bridge draw, remodelling, etc.....	\$2,924 16	\$2,517 12	\$407 04
Chelsea bridge, North, rebuilding draw, etc .....	13,261 64	8,231 10	5,030 54
Gold-street bridge .....	18,597 58	28 25	18,569 33
Meridian-street bridge, reconstructing draw.....	14,260 48	11,426 87	2,833 61
Reconstruction of Essex-street bridge .....	6,500 00	4,969 43	1,530 57
Totals .....	\$55,543 86	\$27,172 77	\$28,371 09

Amount of expenditures Feb. 1, 1896, to Jan. 31, 1897 . . . . .	\$27,172 77
Balances unexpended . . . . .	28,371 09
Amount of appropriations and transfers .	<u>\$55,543 86</u>

## AMOUNTS CHARGED TO SPECIAL APPROPRIATIONS IN CHARGE OF OTHER DIVISIONS.

NAME OF APPROPRIATION.	Where expended.	Amount Expended.
Laying out and construction of highways.....	Railroad bridge over Geneva avenue.....	\$14,026 58
Saratoga street, filling solid old bridge	Winthrop bridge.....	2,022 20
Blue Hill and other avenues.....	Huntington avenue Bridge and Chestnut Hill Reservoir archway .....	10,466 68
Commonwealth avenue, construction,	Cottage Farm bridge.	27,440 85
Street Improvements, Wards 1 and 2,	Public Landing, Jeffries Point.....	417 66
<i>Carried forward</i> .....		\$54,373 97

AMOUNTS CHARGED TO SPECIAL APPROPRIATIONS IN CHARGE OF  
OTHER DIVISIONS.—*Concluded.*

NAME OF APPROPRIATION.	Where expended.	Amount Expended.
<i>Brought forward</i> .....		\$54,373 97
Street Improvements, new Ward 2..	Public Landing, Jef- fries Point.....	300 00
Street Improvements, new Ward 13..	Broadway (draw) bridge .....	3,582 15
Street Improvements, Ward 20.....	Savin Hill avenue bridge .....	43 72
Street Improvements, Ward 25.....	Cottage Farm bridge and Everett street bridge .....	5,629 79
Reserved Fund.....	Executions of Court and award of Com- mittee on Claims...	4,413 94
Total .....		\$68,343 57
Amount expended and charged to regular appropria- tion .....		\$119,963 55
Amount expended and charged to Bridge Division specials .....		27,172 77
Amount expended and charged to special appropria- tions in charge of other divisions .....		68,343 57
Grand total of expenditures Feb. 1, 1896, to Jan. 31, 1897 .....		<u>\$215,479 89</u>

## INCOME.

The amount of bills deposited with the City Collector during the year was as follows:

Work done by this division . . . . .	\$69 90
Rent for location of cable houses and boxes . . . . .	2,950 00
Rent of buildings and pier . . . . .	83 33
Rent of land and buildings (leases) . . . . .	1,266 67
Total . . . . .	<u>\$4,369 90</u>

A detailed statement of expenditures, and description of work performed follows; also a list of those bridges supported wholly or in part by the City of Boston; statement of the public landing places; list of cable-houses and boxes; census of traffic taken on some of the most important bridges; number of draw openings made for navigation; width of draw openings; and table showing widths of bridges, and kind of roadways and sidewalks.

## TIDE-WATER BRIDGES.

**Broadway bridge** (over Fort Point Channel).

Patched deck in various places, and thoroughly patched sheathing the whole length of the bridge, under orders issued at sixteen different times during the year, or practically sheathed the whole bridge.

Repaired pier and fender guard, machinery, engines, iron fence, gates, latches, gas fixtures, concrete walk, etc.

Paid for smoke fenders erected during 1895, and which were removed this year.

Cleaned and painted eight plain posts, or supports to the bridge, and eight with over-hanging brackets, also beams with two coats of metallic mixture. Painted boat, two coats.

Carpenters . . . . .	\$1,557 76
Painters . . . . .	356 94
Lumber . . . . .	552 97
Nails . . . . .	78 47
Ironwork . . . . .	283 52
Repairing engines and machinery . . . . .	255 89
Hardware . . . . .	14 53
Paint stock . . . . .	98 25
Metal smoke fenders . . . . .	431 00
Repairing pier and fender guard . . . . .	161 72
Repairing pipe and gas fix- tures . . . . .	69 90
Repairing concrete walk . . . . .	6 27
Painters' tools . . . . .	59 22
Removing smoke fenders . . . . .	14 80
Teaming lumber . . . . .	127 50
	————— \$4,068 74

## Regular expenses:

Draw-tenders . . . . .	\$5,506 82
Substitutes . . . . .	210 00
Coal . . . . .	179 68
Gas . . . . .	44 40
Water . . . . .	25 00
Insurance on boiler . . . . .	100 00
Ice . . . . .	6 00
Small supplies . . . . .	24 99
	————— 6,096 89
	—————
Cambridge-street bridge (from Brighton to Cambridge).	\$10,165 63

Repaired deck and sheathing on bridge and draw,  
and sheathed the bridge.

Carpenters . . . . . \$40 00

*Carried forward,* \$40 00 \$10,165 63

<i>Brought forward,</i>	\$40 00	\$10,165 63
Lumber . . . . .	67 97	
Nails . . . . .	8 58	
Ironwork . . . . .	5 50	
Spar for buoy . . . . .	12 50	
	—	\$134 55
Regular expenses:		
Draw-tender . . . . .	8372 59	
Coal . . . . .	9 30	
Small supplies . . . . .	8 22	
	—	390 11
	—	—
		524 66

**Charles-river bridge** (from Boston to Charles-town).

Patched sheathing, repaired float and bridge fence, repaired machinery, also set new mooring stone for buoy.	
Carpenters . . . . .	\$54 50
Lumber . . . . .	45 86
Nails . . . . .	16 05
Ironwork . . . . .	31 90
Paint stock (labor 1895) .	33 75
Mooring stone and chain .	70 00
	—
	\$252 06

Regular expenses:	
Draw-tenders . . . . .	\$4,910 32
Coal . . . . .	371 64
Gas . . . . .	35 37
Water . . . . .	25 00
Cordage . . . . .	151 67
Ice . . . . .	6 00
Watering . . . . .	100 00
Insurance on boiler . . . . .	50 00
Supplies . . . . .	21 38
	—
	5,671 38
	—
	5,923 44

**Chelsea bridge, North, (over North channel,  
Mystic river).**

Repaired machinery, gates, gear, latches, etc., and re-set buoy.	
Carpenters . . . . .	\$6 75
Nails . . . . .	8 99
Ironwork . . . . .	27 35
Repairing gate . . . . .	14 16
Repairing machinery . . . . .	6 91
Setting buoy . . . . .	50 00
	—
	\$114 16

*Carried forward,* \$114 16 \$16,613 73

<i>Brought forward,</i>	\$114 16	\$16,613 73
<i>Regular expenses:</i>		
Draw-tenders . . . . .	\$4,333 02	
Substitutes . . . . .	157 50	
Coal . . . . .	30 36	
Electric lights . . . . .	44 00	
Water . . . . .	10 00	
Stove, pipe, etc. . . . .	18 35	
Furniture . . . . .	7 00	
Grease . . . . .	9 65	
Ice . . . . .	6 00	
Small supplies . . . . .	8 94	
	—	4,624 82
	—	4,738 98

**Chelsea bridge, South (over South Channel, Mystic river).**  
Sheathed draw, repaired machinery, engine, gates, etc.

Carpenters . . . . .	\$81 50
Lumber . . . . .	88 14
Nails . . . . .	18 48
Ironwork . . . . .	35 14
Repairing engine . . . . .	60 56
Paint stock . . . . .	4 25
	—
	\$283 07

<i>Regular expenses:</i>		
Draw-tenders . . . . .	\$4,309 98	
Substitutes . . . . .	107 50	
Coal . . . . .	231 20	
Gas . . . . .	36 97	
Water . . . . .	32 50	
Cleaning boiler tubes . . . . .	18 00	
Insurance on boiler . . . . .	50 00	
Ice . . . . .	6 00	
Small supplies . . . . .	5 46	
	—	4,797 61
	—	5,080 68

**Chelsea-street bridge (from East Boston to Chelsea).**

Sheathed one side and repaired iron fence.		
Carpenters . . . . .	\$13 75	
Nails . . . . .	3 94	
Repairing iron fence . . . . .	8 95	
Tide-water displacement . . . . .	27 00	
	—	\$53 64

<i>Regular expenses:</i>		
Draw-tender . . . . .	\$304 75	
	—	
<i>Carried forward,</i>	\$304 75	\$53 64
	—	—
		\$26,433 39

<i>Brought forward,</i>	\$304 75	\$53 64	\$26,433 39
Coal . . . . .	4 65		
Small supplies . . . . .	33		
	—	309 73	—
		—	363 37

**Commercial Point or Tenean bridge, Dorchester.**

Regular expenses :

Draw-tender . . . . .	50 00
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**Congress-street bridge (over Fort Point channel).**

Sheathed draw, repaired deck under paved roadway, patched sheathing in various places, repaired concrete walk, fence, sidewalk, and put in new oak headers. Repaired machinery, engines, iron fence, latches, gears and water-pipe. Painted draw-house and fence on bridge.

Carpenters . . . . .	\$571 44
Painters . . . . .	142 00
Lumber . . . . .	593 73
Nails . . . . .	34 83
Ironwork . . . . .	326 78
Repairing fence . . . . .	111 20
Bolts, etc. . . . .	36 71
Repairing machinery . . . . .	399 10
Sprocket wheel . . . . .	11 83
Repairing engines . . . . .	119 43
Boiler grate . . . . .	24 65
Hardware . . . . .	14 19
Paint stock . . . . .	15 64
Plumbing . . . . .	20 30
Repairing concrete walk . . . . .	50 56
Teaming lumber . . . . .	7 50
Asphaltum . . . . .	12 25
	—
	\$2,492 14

Regular expenses :

Draw-tenders . . . . .	\$5,984 12
Substitutes . . . . .	210 00
Coal . . . . .	305 40
Water . . . . .	74 25
Insurance on boilers . . . . .	100 00
Kerosene . . . . .	38 88
Ice . . . . .	6 00
Small supplies . . . . .	20 60
	—
	6,739 25
	—
	9,231 39

*Carried forward,*

\$36,078 15

*Brought forward,* \$36,078 15

**Dover-street bridge** (over Fort Point channel).

Patched sheathing in various places under eight different orders, and put in new oak headers; repaired machinery, trucks, motor, iron fence, water-pipe, and put in new armature; painted draw-house.

Carpenters . . . . .	\$295 37
Painters . . . . .	175 01
Lumber . . . . .	280 94
Nails . . . . .	21 87
Ironwork . . . . .	100 66
Repairing iron fence . . . . .	48 75
Repairing motor . . . . .	47 32
New armature and supplies, . . . . .	197 03
Hardware . . . . .	6 01
Paint stock . . . . .	18 39
Plumbing . . . . .	20 13
	— \$1,211 48

Regular expenses:

Draw-tenders . . . . .	\$5,309 16
Substitutes . . . . .	183 63
Coal . . . . .	27 90
Repairing stove, etc. . . . .	24 75
New stove . . . . .	12 00
Damage to team . . . . .	5 25
Ice . . . . .	6 00
Small supplies . . . . .	7 07
	— 5,575 76
	— 6,787 24

**Essex-street bridge** (from Brighton to Cambridge).

Sheathed draw and patched deck; patched sheathing at five different places on the bridge and repaired ring bolts.

Carpenters . . . . .	\$102 62
Lumber . . . . .	141 36
Nails . . . . .	10 26
Ironwork . . . . .	14 00
	— \$268 24

Regular expenses:

Draw-tenders . . . . .	\$670 98
Substitute . . . . .	25 32
Coal . . . . .	12 33
Small supplies . . . . .	2 58
	— 711 21
	— 979 45

*Carried forward,*

\$43,844 84

*Brought forward,*

\$43,844 84

**Federal-street bridge** (over Fort Point channel).

Sheathed draw twice, patched sheathing, repaired sidewalk, foundation to sheave, railing to run, and concrete sidewalk; repaired machinery, put in new steel cable on draw, and repaired water-pipes, latches and iron fence; painted draw-house and boat.

Carpenters . . . .	\$104 38
Painters . . . .	155 80
Lumber . . . .	143 35
Nails . . . .	12 15
Ironwork . . . .	157 77
Steel cable . . . .	14 73
New smokestack . . . .	17 90
Paint stock . . . .	19 05
Plumbing . . . .	24 60
Repairing concrete walk . . . .	113 75
	—
	\$763 48

Regular expenses:

Draw-tenders . . . .	\$5,519 98
Substitutes . . . .	120 00
Coal . . . .	43 80
Gas . . . .	50 70
Water . . . .	10 00
Zinc, etc. . . .	6 92
Ice . . . .	6 00
Oil and grease . . . .	8 25
Small supplies . . . .	17 77
	—
	5,783 42
	—
	6,546 90

**Granite bridge** (from Dorchester to Milton).

Sheathed draw, relaid sidewalk, repaired sheathing and fence.

Carpenters . . . .	\$44 75
Lumber . . . .	77 08
Ironwork . . . .	2 20
Nails . . . .	6 00
	—
	\$130 03

Regular expenses:

Draw-tender . . . .	\$243 80
	—
	373 83

*Carried forward,*

\$50,765 57

<i>Brought forward,</i>		\$50,765 57
<b>L-street bridge</b> (over reserved channel at junction of Congress and L streets).		
Repaired draw-house, machinery, etc., and put in water-pipe from hydrant on L street to engine-house, also overflow to tank work done in 1895, afterwards repaired said pipe; painted engine-house and top, sides and underside of draw, two coats.		
Carpenters . . . . .	\$25 00	
Painters . . . . .	178 25	
Lumber . . . . .	3 54	
Nails . . . . .	32	
Ironwork . . . . .	2 90	
Repairing machinery . . .	20 57	
Paint stock . . . . .	16 51	
Plumbing . . . . .	839 18	
Painting signs . . . . .	27 40	
	—————	\$1,113 67
<b>Regular expenses:</b>		
Draw-tenders . . . . .	\$4,568 90	
Coal . . . . .	246 60	
Water . . . . .	56 00	
Insurance on boiler . . . . .	100 00	
Ice . . . . .	6 00	
Lubricating oil . . . . .	6 75	
Gauge glasses, etc. . . . .	7 33	
Small supplies . . . . .	28 09	
	—————	5,019 67
	—————	6,133 34
<b>Malden bridge</b> (from Charlestown to Everett).		
Sheathed the draw, repaired deck and sheathing, wheels and shaft, wheel-rest, guard-rail and latch; also repaired concrete sidewalk.		
Carpenters . . . . .	\$96 50	
Lumber . . . . .	74 60	
Nails . . . . .	2 65	
Ironwork . . . . .	90 17	
Bolts, etc. . . . .	57 26	
Plumbing . . . . .	5 53	
Repairing concrete walk . . . . .	32 25	
Spar for buoy . . . . .	12 50	
	—————	\$371 46
<b>Regular expenses:</b>		
Draw-tenders . . . . .	\$3,512 34	
Substitutes . . . . .	202 29	
<i>Carried forward,</i>	\$3,714 63	\$371 46
		\$56,898 91

<i>Brought forward,</i>	\$3,714 63	\$371 46	\$56,898 91
Coal . . . . .	36 70		
Gas . . . . .	26 00		
Water . . . . .	17 00		
Lubricating oil . . . . .	4 50		
Ice . . . . .	6 00		
Small supplies . . . . .	2 56		
	—————	3,807 39	—————
			4,178 85

**Meridian-street bridge** (from East Boston to Chelsea).

Repaired waterway, machinery on draw and re-set two buoys.

Carpenters . . . . .	\$116 00
Lumber . . . . .	23 21
Ironwork . . . . .	40 94
Repairing machinery . . . . .	41 26
Resetting buoys, shackles, etc. . . . .	265 47
Signs . . . . .	8 48
	—————
	\$495 36

Regular expenses:

Draw-tenders . . . . .	\$4,224 03
Substitutes . . . . .	110 66
Coal . . . . .	23 00
Gas . . . . .	47 34
Feed . . . . .	117 22
Water . . . . .	10 00
Horse-shoeing . . . . .	40 75
Pasturing horse . . . . .	6 00
Ice . . . . .	9 00
Lubricating oil . . . . .	4 50
Small supplies . . . . .	19 93
	—————
	4,612 43
	—————
	5,107 79

**Mt. Washington-avenue bridge** (over Fort-point channel).

Sheathed draw, patched deck, repaired sheathing, sidewalks, beams, machinery and water-pipes; painted draw-house.

Carpenters . . . . .	\$223 76
Painters . . . . .	97 50
Lumber . . . . .	193 15
Nails . . . . .	9 75
Ironwork . . . . .	10 67
Hardware . . . . .	5 73

<i>Carried forward,</i>	\$540 56	\$66,185 55
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<i>Brought forward,</i>	\$540 56	\$66,185 55
Paint-stock . . . .	12 70	
Plumbing . . . .	27 60	
	—	\$580 86

Regular expenses:		
Draw-tenders . . . .	\$4,912 94	
Coal . . . .	32 55	
Gas . . . .	58 80	
Water . . . .	10 00	
Rent of land . . . .	60 00	
Ice . . . .	6 00	
Small supplies . . . .	15 95	
	—	5,096 24
	—	5,677 10

**Neponset bridge** (from Dorchester to Quincy).

Sheathed the draw, built new sidewalk, patched sheathing and repaired machinery.

Carpenters . . . .	\$88 50	
Lumber . . . .	111 03	
Nails . . . .	5 72	
Ironwork . . . .	274 72	
	—	\$479 97

Regular expenses:		
Draw-tender . . . .	\$406 51	
Small supplies . . . .	33	
	—	406 84
	—	886 81

**North Beacon-street bridge** (from Brighton to Watertown).

Sheathed the draw.

Carpenters . . . .	\$8 00	
Lumber . . . .	12 93	
Nails . . . .	1 05	
	—	\$21 98

Regular expenses:		
Draw-tender . . . .	76 32	
	—	98 30

**North Harvard-street bridge** (from Brighton to Cambridge).

Patched deck and sheathing.

Carpenters . . . .	\$14 75	
Lumber . . . .	17 39	
Nails . . . .	1 55	
	—	\$33 69

Regular expenses:		
Draw-tender . . . .	372 59	
	—	406 28

<i>Carried forward,</i>		\$73,254 04
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*Brought forward,*

\$73,254 04

**Warren bridge** (from Boston to Charlestown). Patched sheathing various places under thirteen orders, sheathed the draw twice, and repaired deck, fence, pier, stable floor and ladder; put in three trucks and repaired engines, machinery, trucks, concrete sidewalk, water-pipes, water-closet, iron fence, guard rails, and put in two new steel cables on the draw; also painted draw house.

Carpenters . . . .	\$420 33
Painters . . . .	235 72
Lumber . . . .	362 01
Nails . . . .	37 53
Ironwork . . . .	370 18
Repairing machinery . . . .	136 73
" trucks . . . .	286 40
" engines . . . .	177 35
Grate . . . .	16 02
Steel cables . . . .	34 34
Paint stock . . . .	27 38
Plumbing . . . .	226 97
Repairing concrete walk . . . .	13 62
Doors . . . .	17 25
Window glass . . . .	6 30
	— \$2,368 13

Regular expenses:	
Draw-tenders. . . .	\$5,613 99
Substitutes . . . .	273 75
Coal . . . .	709 12
Gas . . . .	30 76
Water . . . .	50 00
Insurance on boiler . . . .	100 00
Watering . . . .	450 00
Ice . . . .	6 00
Small supplies . . . .	35 65
	— 7,269 27

9,637 40

**Western-avenue bridge** (from Brighton to Cambridge). Sheathed the draw and patched deck and sheathing.

Carpenters . . . .	\$63 00
Lumber . . . .	94 98
Nails . . . .	9 30
Ironwork . . . .	9 70
Hardware . . . .	50
	— \$177 48

*Carried forward,* \$177 48 \$82,891 44

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<i>Brought forward,</i>	\$177 48	\$82,891 44
Regular expenses:		
Draw-tender . . . . .	372 59	
	—	550 07

**Western-avenue bridge** (from Brighton to Watertown).

Sheathed the draw, repaired headers, latches, clamps, chain, and hand-wheel.

Carpenters . . . . .	\$93 57
Lumber . . . . .	53 86
Nails . . . . .	12 06
Ironwork . . . . .	32 67
Hardware . . . . .	1 12
	—
	\$193 28

Regular expenses:	
Draw-tender . . . . .	\$76 32
Small supplies . . . . .	75
	—
	77 07

270 35

**Winthrop bridge** (from Breed's Island to Winthrop).

Patched deck and sheathing, Nails . . . . . \$13 50  
[Balance of material charged to special appropriation.]

Regular expenses:	
Draw-tender . . . . .	\$100 00
Lanterns . . . . .	3 42
Kerosene oil . . . . .	7 68
	—
	111 10
	—
	124 60

**Sundry Expenditures** on tide-water bridges.

Carpenters, sundry repairs, . . . . .	\$119 84
Oak lumber " " . . . . .	136 61
Hardware " " . . . . .	9 43
Car fares (mechanics) . . . . .	150 00
	—
	\$415 88

Regular expenses:	
Messenger . . . . .	\$797 68
Draw-tenders' books . . . . .	66 42
Stationery . . . . .	10 16
Mops . . . . .	11 52
Window brushes . . . . .	12 90
Scrubbing " . . . . .	10 50
Floor " . . . . .	27 00
Dusters . . . . .	17 04
Sponges . . . . .	21 00
Lanterns and globes . . . . .	15 30
Metal polish . . . . .	8 00

<i>Carried forward,</i>	\$997 52	\$415 88	\$83,836 46
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<i>Brought forward,</i>	\$997 52	\$415 88	\$83,836 46
Soap . . . . .	18 15		
Waste . . . . .	46 02		
Heavy brooms . . . . .	8 80		
House " . . . . .	13 00		
Padlocks . . . . .	41 32		
Soapine . . . . .	24 00		
Matches . . . . .	5 50		
Salt, north bridges . . . . .	15 60		
Salt, south " . . . . .	7 20		
	—————	1,177 11	—————
			1,592 99

**Public landings.****Repairs.****Commercial wharf:**

Labor . . . . .	\$26 75	
Towage . . . . .	10 00	
	—————	\$36 75

**Charles river :**

Labor . . . . .	16 50	
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**Jeffries Point:**

Labor . . . . .	\$66 50	
Signs . . . . .	5 35	
	—————	71 85
		————— \$125 10

**Regular expenses:****East Boston:**

Rent . . . . .	250 00	
	—————	375 10
Total expended on tide-water bridges . . . . .		\$85,804 55

## RECAPITULATION.

*Table showing Expenditures on the Tide-water Bridges for the Year Feb. 1, 1896, to Jan. 31, 1897.*

NAME OF BRIDGE.	Repairs, Labor, Lumber, Iron- work and Painting.	Regular Ex- penses, Sala- ries, Fuel and Supplies.	Total.
Broadway.....	\$4,068 74	\$6,096 89	\$10,165 63
Cambridge street.....	134 55	390 11	524 66
Charles river.....	252 06	5,671 38	5,923 44
Chelsea (North).....	114 16	4,624 82	4,738 98
Chelsea (South).....	283 07	4,797 61	5,080 68
Chelsea street.....	53 64	309 73	363 37
Commercial point.....		50 00	50 00
Congress street.....	2,492 14	6,739 25	9,231 39
Dover street.....	1,211 48	5,575 76	6,787 24
Essex street.....	268 24	711 21	979 45
Federal street.....	763 48	5,783 42	6,546 90
Granite.....	120 03	243 80	373 83
L street.....	1,113 67	5,019 67	6,133 34
Malden.....	371 46	3,807 39	4,178 85
Meridian street.....	495 36	4,612 43	5,107 79
Mt. Washington avenue.....	580 86	5,096 24	5,677 10
Neponset.....	479 97	406 84	886 81
North Beacon street.....	21 98	76 32	98 30
North Harvard street.....	33 69	372 59	406 28
Warren.....	2,368 13	7,269 27	9,637 40
Western avenue (to Cambridge) ..	177 48	372 59	550 07
Western avenue (to Watertown) ..	193 28	77 07	270 35
Winthrop.....	13 50	111 10	124 60
Sundry expenditures .....	415 88	1,177 11	1,592 99
Public landings.....	125 10	250 00	375 10
 Totals.....	\$16,161 95	\$69,642 60	\$85,804 55

## INLAND BRIDGES.

**Albany-street bridge** (over Boston and Albany Railroad).

Sheathed bridge, repaired sidewalk and iron fence, patched sheathing various times, patched deck and painted all ironwork.

Carpenters . . . . .	\$458 12
Painters . . . . .	657 15
Watchman . . . . .	98 51
Lumber . . . . .	335 62
Nails . . . . .	12 81
Ironwork . . . . .	2 40
Lag screws . . . . .	5 00
Repairing iron fence . . . . .	54 95
Mortar . . . . .	6 00
Paint stock . . . . .	109 85
	-----
	\$1,740 41

**Allston bridge** (over Boston & Albany Railroad, at Cambridge street).

Patched sheathing.

Carpenters . . . . .	\$9 50
Lumber . . . . .	15 78
Nails . . . . .	79
	-----
	26 07

**Ashland-street bridge** (over New York, New Haven & Hartford Railroad, Providence Division).

Patched sheathing.

Carpenters . . . . .	\$5 00
Lumber . . . . .	5 85
Nails . . . . .	47
	-----
	11 32

**Beacon-street bridge** (over Boston & Albany Railroad).

Repaired deck and sidewalk and sheathed the bridge.

Carpenters . . . . .	\$78 63
Lumber . . . . .	121 80
Nails . . . . .	9 91
Bolts . . . . .	1 00
	-----
	211 34

**Beacon-street bridge** (over outlet).

Repaired sidewalk.

Carpenters . . . . .	\$3 62
Nails . . . . .	32
	-----
	3 94

*Carried forward,*

\$1,993 08

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<i>Brought forward,</i>	\$1,993 08
<b>Berkeley-street bridge</b> (over Boston & Albany Railroad).	
Sheathed one roadway and painted bridge.	
Carpenters . . . . .	\$19 94
Painters . . . . .	157 86
Lumber . . . . .	30 08
Nails . . . . .	2 05
Repairing painters' tools . . . . .	3 20
Paint stock . . . . .	10 94
	_____
	224 07
<b>Berkeley-street bridge</b> (over New York, New Haven & Hartford Railroad, Providence Division).	
Sheathed roadway, patched deck, also patched sheathing six different times.	
Carpenters . . . . .	\$119 62
Lumber . . . . .	394 50
Nails . . . . .	25 08
	_____
	539 20
<b>Berwick Park (foot) bridge</b> (over New York, New Haven & Hartford Railroad, Providence Division).	
Painted bridge.	
Painters . . . . .	\$164 31
Paint stock . . . . .	19 00
	_____
	183 31
<b>Bolton-street bridge</b> (over New England Railroad).	
Repaired sidewalk.	
Carpenters . . . . .	1 25
<b>Boylston-avenue bridge</b> (over Stony brook).	
Patched sheathing three times.	
Carpenters . . . . .	\$16 38
Lumber . . . . .	23 92
Nails . . . . .	2 89
	_____
	43 19
<b>Boylston-street bridge</b> (over Boston & Albany Railroad).	
Patched sheathing.	
Carpenters . . . . .	7 00
<b>Broadway bridge</b> (over Boston & Albany Railroad).	
Sheathed roadway, repaired deck and patched sheathing.	
Carpenters . . . . .	\$15 25
	_____
<i>Carried forward,</i>	\$15 25
	\$2,991 10

<i>Brought forward,</i>	\$15 25	\$2,991 10
Lumber . . . . .	9 70	
Nails . . . . .	6 81	
	_____	31 76

**Brookline-avenue bridge (over Boston & Albany Railroad).**

Sheathed one roadway.

Carpenters . . . . .	\$16 50	
Nails . . . . .	1 58	
	_____	18 08

[Lumber to be paid for in 1897.]

**Byron-street bridge (over Boston, Revere Beach and Lynn Railroad).**

Laid new deck and sheathing.

Carpenters . . . . .	\$117 48	
Lumber . . . . .	250 19	
Nails . . . . .	13 20	
	_____	380 87

**Central-avenue bridge (from Dorchester to Milton over Neponset river).**

Patched deck, sheathing and sidewalk.

Carpenters . . . . .	\$105 71	
Lumber . . . . .	136 56	
Nails . . . . .	5 80	
	_____	248 07

**Cohasset-street (culvert).**

Laid new deck and sheathing.

Carpenters . . . . .	\$41 01	
Lumber . . . . .	71 28	
Nails . . . . .	8 55	
	_____	115 84

**Columbus-avenue bridge (over Boston & Albany Railroad).**

Sheathed both roadways, repaired sidewalks and guard rail.

Carpenters . . . . .	\$75 34	
Lumber . . . . .	95 77	
Nails . . . . .	5 51	
Ironwork . . . . .	7 21	
	_____	183 83

**Cornwall-street bridge (over Stony brook).**

Sheathed the bridge.

Carpenters . . . . .	\$15 00	
Lumber . . . . .	47 99	
Nails . . . . .	2 36	
	_____	65 35

*Carried forward,*

\$4,034 90

<i>Brought forward,</i>		\$4,034 90
<b>Cottage Farm bridge</b> (over Boston & Albany Railroad at Commonwealth avenue).		
Carpenters . . . . .	\$22 00	
Lumber . . . . .	25 30	
Nails . . . . .	10 11	
Use of telephone, etc. . . . .	3 70	
	—	
		61 11
<b>Cottage-street (foot) bridge</b> (over flats, East Boston).		
Bridge-tender . . . . .	\$747 36	
Ice . . . . .	6 00	
	—	
		753 36
<b>Dartmouth-street bridge</b> (over Boston & Albany, and Providence Division of New York, New Haven & Hartford Railroad).		
Patched sheathing, paid for smoke fenders erected in 1895, and which were removed this year, also removed wooden ornaments.		
Carpenters . . . . .	\$20 00	
Painters . . . . .	2 50	
Lumber . . . . .	4 93	
Nails . . . . .	93	
Erecting smoke fenders . . . . .	362 14	
Removing smoke fenders . . . . .	30 90	
	—	
		421 40
<b>Dorchester-street bridge</b> (over New York, New Haven & Hartford Railroad, Plymouth Division).		
Repaired sheathing, and cleaned ironwork under southerly sidewalk, and painted same two coats.		
Painters . . . . .	\$28 13	
Paint stock . . . . .	9 40	
Repairing sheathing by Railroad Co. . . . .	2 64	
	—	
		40 17
<b>Elmwood-street bridge</b> (over Stony brook).		
Sheathed the bridge.		
Carpenters . . . . .	\$7 38	
Lumber . . . . .	17 49	
Nails . . . . .	1 20	
	—	
		26 07
<b>Ferdinand-street bridge</b> (over Boston & Albany Railroad).		
Sheathed roadway, patched deck and sheathing and painted bridge.		
Carpenters . . . . .	\$48 25	
Painters . . . . .	73 65	
	—	
<i>Carried forward,</i>	\$121 90	\$5,337 01

<i>Brought forward,</i>	\$121 90	\$5,337 01
Nails . . . . .	5 15	
Paint stock . . . . .	21 68	
	—	148 73
[Lumber to be paid for in 1897.]		
<b>Hyde Park-avenue bridge</b> (over Stony Brook).		
Sheathed bridge, repaired fence and sheathing.		
Carpenters . . . . .	\$16 13	
Lumber . . . . .	16 42	
Nails . . . . .	1 92	
	—	34 47
<b>Irvington street (foot) bridge</b> (over New York, New Haven & Hartford Railroad, Providence Division).		
Cleaned bridge and painted same two coats. [Part of stock taken from yard.]		
Painters . . . . .	\$29 38	
Paint stock . . . . .	3 96	
	—	33 34
<b>Jamaica street</b> (culvert).		
Patched sheathing.		
Carpenters . . . . .	\$1 25	
Lumber . . . . .	5 28	
Nails . . . . .	23	
	—	6 76
<b>Keyes-street bridge</b> (over Stony brook).		
Sheathed the bridge, afterwards patched the same.		
Carpenters . . . . .	\$16 00	
Lumber . . . . .	19 97	
Nails . . . . .	2 27	
	—	38 24
<b>Leyden-street bridge</b> (over Boston, Revere Beach & Lynn Railroad).		
Patched deck and sheathing.		
Carpenters . . . . .	\$25 97	
Lumber . . . . .	60 47	
Nails . . . . .	4 50	
	—	90 94
<b>Linden Park-street bridge</b> (over Stony brook).		
Sheathed bridge, patched deck and sheathing.		
Carpenters . . . . .	\$65 33	
Lumber . . . . .	62 69	
Nails . . . . .	4 25	
	—	132 27
<i>Carried forward,</i>		\$5,821 76

<i>Brought forward,</i>	\$5,821 76
<b>Longwood—avenue bridge</b> (from Roxbury to Brookline).	
Repaired deck and sheathing at five different times, afterwards laid new sheathing and repaired sidewalk.	
Carpenters . . . . .	\$106 00
Lumber . . . . .	131 92
Nails . . . . .	11 82
Teaming . . . . .	1 50
	_____
	251 24
<b>Massachusetts—avenue bridge</b> (over Boston & Albany Railroad).	
Sheathed the roadways.	
Carpenters . . . . .	\$42 75
Lumber . . . . .	106 10
Nails . . . . .	10 80
	_____
	159 65
<b>Massachusetts—avenue bridge</b> (over New York, New Haven & Hartford Railroad, Providence Division).	
Sheathed the roadways and painted bridge.	
Carpenters . . . . .	\$24 75
Painters . . . . .	231 57
Lumber . . . . .	67 38
Nails . . . . .	5 80
Paint stock . . . . .	24 96
Teaming . . . . .	1 50
	_____
	355 96
<b>Roxbury Crossing (foot) bridge</b> (over New York, New Haven & Hartford Railroad, Providence Division).	
Removed the bridge July 13, 1896.	
Carpenters . . . . .	\$21 00
Removing trusses . . . . .	73 03
Teaming . . . . .	10 00
	_____
	104 03
<b>Shawmut avenue bridge</b> (over Boston & Albany Railroad).	
Carpenters . . . . .	\$7 50
Lumber . . . . .	6 85
Nails . . . . .	94
	_____
	15 29
<b>Swett-street bridge</b> (west of New England Railroad).	
Patched sheathing and repaired sidewalk.	
Carpenters . . . . .	\$18 00
	_____
<i>Carried forward,</i>	\$18 00
	_____
	\$6,707 93

<i>Brought forward,</i>	\$18 00	\$6,707 93
Lumber . . . . .	41 59	
Nails . . . . .	2 42	
	—	62 01
<b>Swett-street bridge</b> (east of New England Railroad).		
Repaired sidewalk.		
Carpenters . . . . .		1 25
<b>West Newton-street bridge</b> (over New York, New Haven & Hartford Railroad, Providence Division).		
Sheathed bridge.		
Carpenters . . . . .	\$34 25	
Lumber . . . . .	72 31	
Nails . . . . .	4 50	
Teaming . . . . .	4 50	
	—	115 56
<b>West Rutland square (foot) bridge</b> (over New York, New Haven & Hartford Railroad, Providence Division).		
Painted bridge.		
Painters . . . . .	\$63 86	
Paint stock . . . . .	19 36	
Repairing tools . . . . .	3 85	
	—	87 07
<b>Williams-street bridge</b> (over Stony brook).		
Patched sheathing.		
Carpenters . . . . .	\$3 00	
Lumber . . . . .	15 64	
Nails . . . . .	1 11	
	—	19 75
Sundry expenditures on Inland Bridges.		
Labor, on snow . . . . .	\$640 34	
Labor, cleaning bridges . . . . .	567 58	
Sand, for slippery walks . . . . .	40 25	
Teaming sweepings . . . . .	55 00	
Carpenters, sundry repairs . . . . .	59 92	
Car fares, mechanics, sundry bridges . . . . .	80 00	
	—	1,443 09
Total expended on Inland Bridges . . . . .		<u>\$8,436 66</u>

## RECAPITULATION.

*Table showing expenditures on the Inland Bridges for the Year Feb. 1, 1896, to Jan. 31, 1897.*

Name of Bridge.	Repairs, Labor, Lumber, Ironwork, and Painting.
Albany street . . . . .	\$1,740 41
Allston . . . . .	26 07
Ashland street . . . . .	11 32
Beacon street (over B. & A. Railroad) . . . . .	211 34
Beacon street (over outlet) . . . . .	3 94
Berkeley street (over B. & A. Railroad) . . . . .	224 07
Berkeley street (over Providence Division) . . . . .	539 20
Berwick park . . . . .	183 31
Bolton street . . . . .	1 25
Boylston avenue . . . . .	43 19
Boylston street . . . . .	7 00
Broadway (over B. & A. Railroad) . . . . .	31 76
Brookline avenue . . . . .	18 08
Byron street . . . . .	380 87
Central avenue . . . . .	248 07
Cohasset street (culvert) . . . . .	115 84
Columbus avenue . . . . .	183 83
Cornwall street . . . . .	65 35
Cottage Farm . . . . .	61 11
Cottage street . . . . .	753 36
Dartmouth street . . . . .	421 40
Dorchester street . . . . .	40 17
Elmwood street . . . . .	26 07
Ferdinand street . . . . .	148 73
Hyde Park avenue . . . . .	34 47
Irvington street . . . . .	33 34
Jamaica street (culvert) . . . . .	6 76
Keyes street . . . . .	38 24
Leyden street . . . . .	90 94
Linden Park street . . . . .	132 27
Longwood avenue . . . . .	251 24
Massachusetts avenue (over B. & A. Railroad) . . . . .	159 65
Massachusetts avenue (over Providence Division), Roxbury Crossing . . . . .	355 96
Shawmut avenue . . . . .	104 03
Swett street (west) . . . . .	15 29
Swett street (east) . . . . .	62 01
West Newton street . . . . .	1 25
West Rutland square . . . . .	115 56
Williams street . . . . .	87 07
Sundry expenditures . . . . .	19 75
Total . . . . .	\$1,443 09
	<hr/>
Total . . . . .	\$8,436 66

REGULAR MAINTENANCE EXPENSES AT NORTH  
AND SOUTH YARDS.

NORTH YARD, DISTRICT No. 1.

*Warren Bridge.*

Messengers . . . . .	\$1,603 72
Watchman . . . . .	714 00
Tools for carpenters . . . . .	63 70
Gas . . . . .	23 07
Repairing steam apparatus . . . . .	17 83
Telephone . . . . .	156 00
Kerosene oil . . . . .	14 00
Water . . . . .	20 00
Ice . . . . .	6 00
Plumbing . . . . .	2 50
Red flags . . . . .	13 25
Shovels . . . . .	5 85
Hardware . . . . .	7 19
Small supplies . . . . .	15 03
	_____
	\$2,062 14

STABLE, DISTRICT No. 1.

*Warren Bridge.*

Teamster . . . . .	\$780 00
Hostler . . . . .	575 75
Stable boy . . . . .	122 50
Feed . . . . .	340 10
New buggy . . . . .	185 00
Repairing wagon . . . . .	16 30
Repairing sleigh . . . . .	26 75
Repairing harness . . . . .	12 00
Horseshoeing . . . . .	63 00
Veterinary service . . . . .	23 00
Horse-clipping . . . . .	9 00
Fur robes . . . . .	30 92
Blanket, whip, and weight . . . . .	5 25
Insect powder . . . . .	7 50
Small supplies . . . . .	17 08
	_____
	2,214 15
Total expended, North Yard and Stable . . . . .	_____
	\$4,276 29

SOUTH YARD, DISTRICT No. 2.

*No. 45 Foundry Street.*

Messengers . . . . .	\$1,288 56
Watchman . . . . .	742 00
Carried forward,	_____
	\$2,030 56

<i>Brought forward,</i>	\$2,030 56
Yard and stock boys . . . . .	740 50
Tools for carpenters . . . . .	68 18
Tools for painters . . . . .	166 44
Telephone . . . . .	156 00
Hardware . . . . .	6 70
Cordage . . . . .	11 92
Coal . . . . .	18 60
Water . . . . .	10 00
Red flags . . . . .	23 25
Ice . . . . .	6 00
New stove and pipe . . . . .	24 00
Shovels . . . . .	16 47
Ice choppers . . . . .	4 65
Street horses . . . . .	12 83
Small supplies . . . . .	54 46
	—————
	\$3,350 56

## STABLE, DISTRICT No. 2.

*No. 64 Dorchester Avenue.*

Teamster . . . . .	\$792 50
Hostler . . . . .	750 00
Stable boy . . . . .	649 25
Feed . . . . .	449 49
Repairing wagons . . . . .	212 55
Repairing buggies . . . . .	179 35
Repairing sleighs . . . . .	86 25
Repairing vehicles by Sanitary Division, . . . . .	400 60
Rent of stable . . . . .	600 00
Coal . . . . .	18 60
Veterinary service . . . . .	189 43
Two new harnesses . . . . .	113 00
Repairing harnesses . . . . .	69 15
Clipping horses . . . . .	38 00
Horseshoeing . . . . .	333 75
Horse hire . . . . .	13 85
Use of buggy . . . . .	57 50
Second-hand buggy . . . . .	100 00
New sleigh . . . . .	150 00
New buggy . . . . .	250 00
Bay mare . . . . .	195 00
Bay gelding . . . . .	130 00
Fur robes . . . . .	37 07
Blanket, whip, and weight . . . . .	7 88
Small supplies . . . . .	107 15
	—————
	5,930 37
Total expended, South Yard and Stable . . . . .	\$9,280 93

## SPECIAL APPROPRIATIONS.

## IN CHARGE OF BRIDGE DIVISION.

**Charles-river bridge**, draw, remodelling, etc.  
(Boston to Charlestown).

Repaired deck and piling under paved roadway,  
sheathed the draw twice, put in truck and re-  
paired fence.

Carpenters . . . . .	\$291 08
Spruce . . . . .	247 46
Oak . . . . .	39 13
Bolts, nuts, etc. . . . .	14 18
W. H. Ellis, repairing planking under roadway, etc. . . . .	1,925 27
Total expended Jan. 31, 1897 . . . . .	\$2,517 12
Balance . . . . .	407 04
Appropriation . . . . .	<u>\$2,924 16</u>

**Chelsea bridge** (North) rebuilding draw, etc.,  
(over North channel, Mystic river).

Made general repairs and additions to racks, shafts,  
pinions, gears, etc., of the draw, preparatory to  
the use of electric motor, and made extensive  
repairs upon the waterway.

Contract with Augustus Bellevue & Co.:

Eighth and final estimate . . . . .	\$4,561 80
Extra work done . . . . .	255 48
	<u>\$4,817 28</u>

Setting rack, trolley-posts, etc., and re- pairing float stage, fence and north pier . . . . .	548 02
Castings, rack, boxes, shafts, pinions, etc. . . . .	934 77
Castings for counterbalance weights . . .	59 00
Inspector . . . . .	92 00
Repairing motor . . . . .	103 88
Installing motor, etc. . . . .	279 74
Melting lead for ballast . . . . .	6 60
Two mitre gears . . . . .	50 00
Two spare axles with wheels . . . . .	136 00
Painting track stringers . . . . .	126 84
Express . . . . .	3 90
Carpenters, on waterway . . . . .	513 00
Lumber, on waterway . . . . .	142 42
Repairing machinery . . . . .	23 40
Resetting buoy . . . . .	165 00
<i>Carried forward,</i>	\$8,001 85

<i>Brought forward,</i>	\$8,001 85
Ringbolts, repairing latches, etc.	39 00
Car fares . . . . .	25 00
Elastic paint mixture . . . . .	47 25
Painting ten signs . . . . .	118 00
 Total expended Jan. 31, 1897 . . . . .	 \$8,231 10
Balance . . . . .	5,030 54
 Appropriation . . . . .	 <u>\$13,261 64</u>

<b>Gold-street bridge</b> (over New England Railroad).	
Paid New England Railroad Company for flagmen while bridge was being placed in position . . . . .	\$28 25
 Total expended Jan. 31, 1897 . . . . .	 \$28 25
Balance . . . . .	18,569 33
 Appropriation . . . . .	 <u>\$18,597 58</u>

<b>Meridian-street bridge</b> , reconstructing draw (from East Boston to Chelsea).	
Rebuilt trusses of the draw, and repaired spur-shores, piles, girder caps, and fender-guard. Put in new deck on draw, sheathed the same, repaired waterway, pier, fence, concrete sidewalk, machinery and float stage, reset buoy and painted bridge and fence.	
Carpenters . . . . .	\$1,852 96
Painters . . . . .	1,631 36
Spruce . . . . .	790 64
Hard pine . . . . .	712 79
Oak . . . . .	23 80
Nails . . . . .	69 73
Bolts, straps, plates, wedges, etc.	289 12
Repairing machinery . . . . .	52 50
Repairing rack pinions, gear, etc.	75 88
Ladders, rope, grindstones, wrenches, etc. . . . .	54 87
Lead, oil, turpentine and japan . . . . .	128 90
Car fares . . . . .	100 00
Contract with W. H. Ellis, rebuilding trusses of the draw . . . . .	2,025 96
Driving piles, repairing fender-guard, etc. . . . .	731 18
Resetting buoy, chain, etc. . . . .	125 00

*Carried forward,* \$8,664 69

<i>Brought forward,</i>	\$8,664 69
Repairing float stage . . . . .	31 08
Inspector . . . . .	276 00
Repairing concrete sidewalk . . . . .	870 10
Contract with Lockwood Manufacturing Co., for dynamo and machinery, . . . . .	1,585 00
Total expended Jan. 31, 1897 . . . . .	\$11,426 87
Balance . . . . .	2,833 61
Appropriation . . . . .	<u>\$14,260 48</u>

**Reconstruction of Essex-street bridge (from Brighton to Cambridge).**

[Work not completed.]

Contract with Wm. S. Rendle, making repairs, first approximate estimate, . . . . .	\$4,688 70
Specifications . . . . .	31 10
Advertising . . . . .	25 63
Inspector . . . . .	224 00
Total expended Jan. 31, 1897 . . . . .	\$4,969 43
Balance . . . . .	1,530 57
Appropriation . . . . .	<u>\$6,500 00</u>

**AMOUNTS CHARGED TO SPECIAL APPROPRIATIONS IN CHARGE OF OTHER DIVISIONS.**

Paid New York, New Haven & Hartford Railroad Company for the construction of railroad bridge over Geneva avenue, Dorchester, at Shawmut Branch.	
Charged to "Laying-Out and Construction of Highways" . . . . .	<u>\$14,026 58</u>

**Winthrop bridge (from Breed's Island to Winthrop).**

Repaired damage to bridge caused by ice and the tide; also sheathed the bridge.

Contract with J. N. Hayes & Co., making repairs, driving piles, etc. . . . .	\$1,519 92
Inspector . . . . .	144 00
Carpenters . . . . .	105 26
Lumber . . . . .	253 02

Charged to Saratoga street, filling solid old bridge, \$2,022 20

**Huntington avenue bridge (over Boston & Albany Railroad).**

Stripped the bridge, flattened the curve on top of roadway and sidewalk girders and stringers, put in new deck on roadway, and sidewalks of hard pine, laid new asphalt sidewalks, sheathed the bridge, built new fence, and cleaned all iron and painted same with two coats of red lead.

Painters . . . . .	\$1,510 86
Paint, oil-mixer, red lead, oil, etc. . . . .	241 29
Repairing painters' tools . . . . .	18 80
Contract with Wm. L. Miller, stone-work, hard pine roadways, sidewalks, etc. . . . .	4,358 00
Contract with Boston Bridge Works, work on girders . . . . .	2,646 99
Contract with Boston Asphalt Co., asphalt sidewalks . . . . .	635 25
Services of flagman . . . . .	117 00
Car fares . . . . .	25 00
Repairing sheathing, carpenters . . . . .	\$11 25
Lumber . . . . .	23 24
Teaming . . . . .	5 00
	—
	39 49
Contract with Wm. L. Miller, removing archway at Chestnut-Hill Reservoir . . . . .	\$9,592 68
	874 00
Charged to Blue Hill and other avenues . . . . .	\$10,466 68

**Cottage Farm Bridge (over Boston & Albany Railroad at Commonwealth avenue).**

Completed new bridge.

Advertising . . . . .	\$55 75
Portland cement . . . . .	2,968 40
Hard brick . . . . .	47 25
Hollow brick . . . . .	20 00
Sand . . . . .	405 00
Bolts (150) . . . . .	20 42
Inspector . . . . .	330 00
Covering steel beams with lead . . . . .	1,647 00
Pieces stone (16) . . . . .	227 96
Contract with Metropolitan Construction Co. laying brick arches and concrete filling . . . . .	3,041 48
Contract with A. C. Richmond, placing 124 steel beams . . . . .	1,900 00
	—
Carried forward,	\$10,663 26

<i>Brought forward,</i>	\$10,663 26
Repairing old bridge, carpenters . . . . .	\$51 63
Lumber . . . . .	117 26
	<u>-----</u>
	168 89
Building temporary fence, carpenters . . . . .	\$53 25
Lumber . . . . .	46 35
	<u>-----</u>
	99 60
Charged to Commonwealth avenue (old appropriation) . . . . .	<u>-----</u>
	\$10,931 75
<b>Cottage Farm bridge</b> (over Boston & Albany Railroad at Commonwealth avenue).	
Completed new bridge.	
Sand, gravel and screenings . . . . .	\$611 60
Hollow brick and skews . . . . .	756 00
Portland cement . . . . .	1,917 60
Rods (616) . . . . .	87 20
Contract with Metropolitan Construction Co., laying brick arches and concrete filling, southerly section . . . . .	2,243 15
Contract with E. B. Badger & Son, covering 91 steel beams with lead . . . . .	955 50
Contract with A. C. Richmond, extension of abutment, resetting parapet stone and placing filling back of abutment . . . . .	2,937 38
Contract with Boston Bridge Works, steel superstructure, southerly section . . . . .	2,400 00
Contract with Boston Asphalt Company Sicilian rock asphalt, northerly roadway . . . . .	1,751 68
Sicilian rock asphalt, southerly roadway . . . . .	1,707 86
Artificial stone sidewalk and curbing, Setting stone bearing blocks, resetting parapet, northerly abutment, recutting stone for beams and removing old parapet . . . . .	864 85
	<u>-----</u>
Charged to Commonwealth avenue (new appropriation) . . . . .	276 28
	<u>-----</u>
	\$16,509 10
<b>Public Landing</b> , Jeffries Point (East Boston).	
Built new landing.	
Carpenters . . . . .	\$180 00
	<u>-----</u>
<i>Carried forward,</i>	\$180 00

<i>Brought forward,</i>	\$180 00
Lumber . . . . .	89 38
Two old masts . . . . .	70 00
Nails . . . . .	2 26
Bolts, hinges, clamps, etc. . . . .	76 02
Charged to Street Improvements, Wards 1 and 2 . . . . .	<u>\$417 66</u>

**Public Landing, Jeffries' Point (East Boston).**

Built new landing.

Putting in foundation, placing old ferry drop on  
same and driving guide piles for float.

Charged to Street Improvements, New Ward 2.

\$300 00**Broadway Bridge (over Fort Point channel).**

Removed deck, sheathing and sidewalk, put in new beams of hard pine, and deck of kyanized spruce, sheathed the draw with spruce, laid sidewalks of hard pine, built two new sets of stairs, from draw to pier, of hard pine, boxed around trusses with cypress. Painted centre, chords and iron beams with red lead, also painted fence and draw-house. [Part of mechanics labor charged to regular appropriation.]

(Work not completed.)

Carpenters . . . . .	\$1,792 18
Painters . . . . .	617 70
Kyanized spruce . . . . .	635 50
Spruce . . . . .	133 00
Hard pine . . . . .	152 98
Surveying kyanized spruce . . . . .	8 09
Iron clamps, bolts, wedges, dogs and repairing painters' hangers . . . . .	45 50
Repairing iron fence . . . . .	197 20

Charged to Street Improvements, New Ward 13,

\$3,582 15**Savin Hill-avenue bridge (over New York,  
New Haven & Hartford Railroad, Plymouth  
Division).**Paid New York, New Haven & Hartford Railroad  
Company for making repairs, city's part or two-  
fifths. . . . . \$43 72

Charged to Street Improvements, Ward 20 . . . .

\$43 72

**Everett-street bridge** (over Boston & Albany Railroad).

Sheathed the bridge.

Carpenters . . . . .	\$108 38
Lumber . . . . .	327 36
Teaming . . . . .	20 00
	_____
	\$455 74

**Cottage Farm bridge** (over Boston & Albany Railroad at Commonwealth avenue).

Completed new bridge.

Inspector . . . . .	\$415 00
Sand and screenings . . . . .	308 80
Portland cement . . . . .	881 25
Pier column . . . . .	44 00
Contract with A. C. Richmond, removing old bridge and placing 91 beams, . . . . .	1,400 00
Contract with Cape Ann Granite Co. for parapet and bearing courses, southerly section . . . . .	2.125 00
	_____
	5,174 05

Charged to Street Improvements, Ward 25 . . . . .

Paid award of Committee on Claims to John P. Donovan, for personal injuries received Dec. 3, 1895, on Mt. Washington-avenue bridge . . . . .	\$150 00
Paid execution of court to James O. Stone, for personal injuries received June 4, 1894, on Broadway bridge, over Boston & Albany Railroad . . . . .	1,201 35
Paid execution of court to Nathaniel P. Doane <i>et al.</i> , for damage to tug "Nellie," Nov. 18, 1893, at Chelsea (North) bridge . . . . .	3,062 59
	_____
Charged to Reserved Fund . . . . .	\$4,413 94

## LIST OF BOSTON BRIDGES.

## I.—BRIDGES WHOLLY SUPPORTED BY BOSTON.

[In the list those marked with an asterisk (\*) are over navigable waters, and are each provided with a draw.]

*In charge of Bridge Division.*

- Allston, over Boston & Albany Railroad at Cambridge street, Brighton.
- Ashland street, over N. Y., N. H. & H. Railroad, Providence Division, West Roxbury.
- Athens street, over New England Railroad.
- Baker street, at Brook farm, West Roxbury.
- Beacon street, over outlet to Back Bay Fens.
- Beacon street, over Boston & Albany Railroad.
- Berkeley street, over Boston & Albany Railroad.
- Berkeley street, over N. Y., N. H. & H. Railroad, Providence Division.
- Berwick-park (foot) bridge, over N. Y., N. H. & H. Railroad, Providence Division.
- Blakemore street, over N. Y., N. H. & H. Railroad, Providence Division.
- Bolton street, over New England Railroad.
- Boylston avenue, over Stony brook, West Roxbury.
- Boylston street, over Boston & Albany Railroad.
- \*Broadway, over Fort-Point channel.
- Broadway, over Boston & Albany Railroad.
- Brookline avenue, over Boston & Albany Railroad.
- Byron street, over Boston, Revere Beach & Lynn Railroad.
- \*Charles river, from Boston to Charlestown.
- \*Chelsea (South), over south channel, Mystic river.
- \*Chelsea street, from East Boston to Chelsea.
- Columbus avenue, over Boston & Albany Railroad.
- \*Commercial Point, or Tenean, Dorchester.
- \*Congress street, over Fort-Point channel.
- Cornwall street, over Stony brook, West Roxbury.
- Cottage Farm, over Boston & Albany Railroad, at Commonwealth avenue.
- Cottage-street foot-bridge, over flats, East Boston.
- Dartmouth street, over Boston & Albany, and Providence Division of N. Y., N. H. & H. Railroad.
- \*Dover street, over Fort-Point channel.
- Elmwood street (private way), over Stony brook, Roxbury.
- \*Federal street, over Fort-Point channel.
- Ferdinand street, over Boston & Albany Railroad.
- Florence street, over Stony brook, West Roxbury.
- Gold-street foot-bridge, over New England Railroad.

Huntington avenue, over Boston & Albany Railroad.  
 Hyde Park avenue, over Stony brook, West Roxbury.  
 Irvington-street foot bridge, over N. Y., N. H. & H. Railroad, Providence Division.  
 Keyes street, over Stony brook, West Roxbury.  
 \*L street, over reserved channel at junction of Congress and L streets.  
 Leyden street, over Boston, Revere Beach & Lynn Railroad.  
 Linden Park street, over Stony brook, Roxbury.  
 \*Malden, from Charlestown to Everett.  
 Massachusetts avenue, over Boston & Albany Railroad.  
 Massachusetts avenue, over N. Y., N. H. & H. Railroad, Providence Division.  
 \*Meridian street, from East Boston to Chelsea.  
 \*Mt. Washington avenue, over Fort-Point channel  
 Shawmut avenue, over Boston & Albany Railroad.  
 Swett street, east of New England Railroad.  
 Swett street, west of New England Railroad.  
 Texas street, over Stony brook, Roxbury.  
 \*Warren, from Boston to Charlestown.  
 West Newton street, over N. Y., N. H. & H. Railroad, Providence Division.  
 West Rutland-square foot-bridge, over N. Y., N. H. & H. Railroad, Providence Division.  
 Williams street, over Stony brook, West Roxbury.  
 Winthrop, from Breed's Island to Winthrop.

*In charge of Park Department.*

Agassiz, in Back Bay Fens.  
 Arborway, over Stony brook.  
 Audubon road, over Boston & Albany Railroad.  
 Bernier-street (foot-bridge), in the Riverway.  
 Boylston-street, in Back Bay Fens.  
 Bridle path, in the Riverway, over Muddy river.  
 \*Castle-island (foot bridge), from Marine park, South Boston, to Castle Island.  
 Charlesgate, Back Bay Fens, over Boston & Albany Railroad.  
 Circuit drive, over Scarboro' pond, in Franklin Park.  
 Commonwealth avenue, in Back Bay Fens.  
 Ellicott arch, in Franklin park.  
 Fen, Back Bay Fens.  
 Forest Hills entrance, in Franklin park.  
 Leverett-pond (foot-bridge), in Leverett park.  
 Neptune road, over Boston, Revere Beach & Lynn Railroad.  
 Scarboro' pond (foot-bridge), in Franklin park.  
 Stony brook, Back Bay Fens.

*In charge of Public Grounds Department.*

Public Garden (foot-bridge).

II.—BRIDGES OF WHICH BOSTON SUPPORTS THE PART  
WITHIN ITS LIMITS.

*In charge of Bridge Division.*

- \*Cambridge street, from Brighton to Cambridge.
- Central avenue, from Dorchester to Milton.
- \*Chelsea (North), from Charlestown to Chelsea.
- \*Essex street, from Brighton to Cambridge.
- \*Granite, from Dorchester to Milton.
- †Longwood avenue, from Roxbury to Brookline.
- Mattapan, from Dorchester to Milton.
- Milton, from Dorchester to Milton.
- \*Neponset, from Dorchester to Quincy.
- \*North Beacon street, from Brighton to Watertown.
- \*North Harvard street, from Brighton to Cambridge.
- Spring street, from West Roxbury to Dedham.
- \*Western avenue, from Brighton to Cambridge.
- \*Western avenue, from Brighton to Watertown.

*In charge of Park Department.*

- Bellevue street, in the Riverway, over Muddy river.
- Bernier-street (foot-bridge), in the Riverway, over Muddy river.
- Brookline avenue, in the Riverway, over Muddy river.
- Tremont street, in the Riverway, over Muddy river.

III.—BRIDGES OF WHICH BOSTON PAYS A PART OF THE  
COST OF MAINTENANCE.

*In charge of Bridge Division.*

- Albany street, over Boston & Albany Railroad.
- Chelsea bridge, over Boston & Maine Railroad.
- Dorchester street, over N. Y., N. H. & H. Railroad, Plymouth Division.
- Everett street, over Boston & Albany Railroad, Brighton.
- West Fourth street, over N. Y., N. H. & H. Railroad, Plymouth Division.

*In charge of Commissioners of Cambridge Bridges.*

- \*Canal, from Boston to Cambridge.
- \*Harvard, from Boston to Cambridge.
- \*Prison Point, from Charlestown to Cambridge.
- \*West Boston, from Boston to Cambridge.

IV.—BRIDGES SUPPORTED BY RAILROAD CORPORATIONS.

*1st.—Boston & Albany Railroad.*

- Harrison avenue.
- Market street, Brighton.
- Tremont street.
- Washington street.

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<sup>†</sup>To be rebuilt and maintained by Park Departments of Boston and Brookline by Act of Legislature.

*2d.—Boston & Maine Railroad, Eastern Division.*

Mystic avenue.  
Main street.

*3d.—Boston & Maine Railroad, Western Division.*

Mystic avenue.  
Main street.

*4th.—Boston, Revere Beach & Lynn Railroad.*

Everett street.

*5th.—New England Railroad.*

Dorchester avenue.  
Harvard street, Dorchester.  
Morton      "      "  
Norfolk      "      "  
Norfolk      "      "  
Silver street.  
Washington street, Dorchester.  
West Broadway.  
West Fifth street.  
West Fourth street.  
West Second street.  
West Sixth street.  
West Third street.

*6th.—New York, New Haven & Hartford Railroad, Plymouth Division.*

Adams street.  
Ashmont street and Dorchester avenue.  
Cedar Grove Cemetery.  
Freeport street.  
Savin Hill avenue.

*7th.—New York, New Haven & Hartford Railroad, Providence Division.*

Beach street, West Roxbury.  
Bellevue street, West Roxbury.  
Canterbury street, West Roxbury.  
Centre and Mt. Vernon streets, West Roxbury.  
Dudley avenue, West Roxbury.  
Park street, West Roxbury.

## RECAPITULATION OF BRIDGES.

I.	Number wholly supported by Boston:	
	In charge of Bridge Division . . . . .	54
	In charge of Park Department . . . . .	17
	In charge of Public Grounds Department . . . . .	1
		— 72
II.	Number of which Boston supports the part within its limits:	
	In charge of Bridge Division . . . . .	14
	In charge of Park Department . . . . .	4
		— 18
III.	Number of which Boston pays a part of the cost of maintenance:	
	In charge of Bridge Division . . . . .	5
	In charge of Commissioners of Cambridge Bridges . . . . .	4
		— 9
IV.	Number supported by railroad corporations:	
1.	Boston & Albany . . . . .	4
2.	Boston & Maine, Eastern Division . . . . .	2
3.	" " Western Division . . . . .	2
4.	Boston, Revere Beach & Lynn. . . . .	1
5.	New England . . . . .	13
6.	New York, New Haven & Hartford, Plymouth Division . . . . .	5
7.	New York, New Haven & Hartford, Providence Division . . . . .	6
		— 33
	Total number . . . . .	<u>132</u>

List of Small Bridges or Culverts having Wooden Tops, which are repaired by Bridge Division.—Walls  
repaired and Openings cleaned by Sewer Division.

LOCATION.	Span. Feet.	Height of Opening, Feet.	Length. Feet.	Side-walls, Covering.
Ashland street and Canterbury, near Calvary Cemetery, West Roxbury..	7.6	5.5	75	Stone .....
Beech street, near Anawan avenue, at Central station, West Roxbury.....	4.0	4.0	50	Stone .....
Cass street, near Spring-street station, West Roxbury.....	7.0	3.0	21	Stone .....
Cohasset street, Roslindale .....	14.0	7.5	60	Stone .....
Gardner street, near Cow Island, West Roxbury .....	5.0	5.5	33	Wood .....
Jamaica street, Jamaica Plain .....	10.0	4.0	39	Stone .....
Park street, west of Dorchester avenue, Dorchester.....	5.0	3.7	50	Stone .....
Park street, west of N. Y., N. H. & H. Railroad, Dorchester.....	8.5	5.0	50	Stone .....
Powell street, near Spring-street station, West Roxbury.....	12.0	3.0	65	Stone .....
Spring street, near Spring-street station, West Roxbury.....	2.7	2.7	63	Stone .....
Summer street, near Spring-street station, West Roxbury.....	4.0	4.5	40	Stone .....
Williams street, at Stony Brook, West Roxbury.....	5.0	5.0	50	Wood .....
Woodman street, Jamaica Plain .....	6.3	4.0	65	Stone .....

## PUBLIC LANDING-PLACES.

The following public landing-places have been built by the city, and are maintained and controlled by the Street Department:—

*Charles-river Bridge.*—Size, 40×60. Built in 1890. Moored from city's property.

*Essex-street Bridge.*—Size, 9×23. Built in 1890. Moored from city's property.

*East Boston, Public Landing.*—Size, 18×30. Built in 1893. Moored at dock of East Boston Dry Dock Company. Dock and flats leased at \$250 per year.

*Commercial Wharf.*—Size, 30×50. Built by M. F. Sullivan; contract dated Jan. 1, 1892. Moored at dock of Commercial Wharf Corporation. Dock and flats leased Nov. 30, 1891, at \$1,000 per year.

*Federal-street Bridge.*—Size, 20×30. Built by M. F. Sullivan, Oct. 26, 1892. Moored from city's property.

## CABLE-HOUSES AND BOXES.

The following is a list of cable-houses and boxes on bridges in charge of this division:—

New England Telephone and Telegraph Company:

Charles-river bridge, 2 houses, 1 unused box.

Chelsea [South] bridge, 1 house.

Congress-street bridge, 2 houses.

Dover-street bridge, 2 houses or boxes.

Chelsea [North] bridge, 1 box.

Chelsea-street bridge, 1 box.

Malden bridge, 4 boxes.

Meridian-street bridge, 2 boxes.

Neponset bridge, 2 boxes on poles.

Warren bridge, 2 boxes.

American Telephone and Telegraph Company:

Federal-street bridge, 1 house.

Merchants' Telegraph Company:

Congress-street bridge, 2 boxes.

Postal Telegraph Cable Company:

Congress-street bridge, 2 houses.

Malden bridge, 2 boxes.

Warren bridge, 2 boxes.

Boston Electric Light Company:

Congress-street bridge, 2 boxes.

West End Street Railway Company:

Cambridge-street bridge, 1 house.

Dover-street bridge, 1 house, 1 box.

Federal-street bridge, 2 houses.

Malden bridge, 2 houses.

Warren bridge, 2 houses.

Lynn & Boston Railroad Company:

Chelsea [North] bridge, 4 boxes.

Chelsea [South] bridge, 8 boxes.

Boston Police Department:

Chelsea [South] bridge, 1 box.

Malden bridge, 2 boxes.

Boston Fire Department:

Chelsea [North] bridge, 1 box.

Dover-street bridge, 1 house, 1 box.

Meridian-street bridge, 2 boxes.

Warren bridge, 2 boxes.

On Warren bridge there are also five small boxes; the owners of the same are unknown.

**Statement of Traffic on Wednesday, Oct. 28, 1896, between the Hours of 6 A.M. and 7 P.M.**

*North Bridges.*

NAME OF BRIDGE.	Foot passengers from Boston.	Foot passengers to Boston.	Teams from Boston.	Teams to Boston.	Street cars from Boston.	Street cars to Boston.	Passengers in cars from Boston.	Passengers in cars to Boston.
Charles river.....	5,280	4,770	2,350	2,175				
Chelsea (North)....	1,270	1,137	807	862	343	338	8,080	7,193
Chelsea (South)....	1,702	1,936	861	1,075	343	338	9,390	9,119
Malden .....	590	683	812	792	328	351	8,460	8,395
Meridian street...	2,079	2,132	590	656	125	121	1,424	1,549
Warren.....	4,047	5,121	2,585	3,203	1,122	1,132	30,452	34,941

*South Bridges.*

Broadway .....	9,940	9,600	2,035	2,215	93	91	1,860	1,820
Congress street....	5,463	5,257	2,470	2,560				
Dover street.....	3,974	4,895	745	912	162	172	4,033	4,124
Federal street.....	6,570	3,950	1,718	1,572	498	497	9,621	11,348
L street.....	855	985	98	322				
Mt. Washington avenue .....	1,592	1,789	717	850				

DRAW-TENDERS' REPORTS.  
 Giving the number of Vessels passing through the Drawbridges controlled by the City of Boston, from Feb. 1,  
 1896, to Jan. 31, 1897.

NAME OF BRIDGE.	STEAMERS.			SAILING VESSELS.			TUGS.			ALL OTHERS.			TOTAL NUMBER OF VESSELS.		
	By Day.	By Night.	Total.	By Day.	By Night.	Total.	By Day.	By Night.	Total.	By Day.	By Night.	Total.	Carriages.	Passenger's.	Total Number of Carriages.
Broadway.....	16	6	22	2,086	996	3,082	2,010	348	2,358	638	232	890	4,770	1,582	6,352
Cambridge street.....	.....	.....	.....	123	10	133	533	39	572	204	13	217	860	62	922
Charles river.....	32	7	39	2,167	690	2,857	3,329	792	4,121	1,987	547	2,534	7,515	2,036	9,551
Chelsea (North).....	108	51	159	983	186	1,169	3,724	649	4,373	1,830	399	2,229	6,645	1,285	7,930
Chelsea (South).....	36	3	39	1,201	59	1,260	2,625	123	2,748	896	18	914	4,758	203	4,961
Chelsea street.....	6	.....	6	29	1	30	147	16	163	99	6	105	281	23	304
Commercial Point.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	39	166
Congress street.....	209	83	292	3,189	1,075	4,264	6,987	1,360	8,347	2,441	618	3,039	12,826	3,136	15,962
Dover street.....	14	6	20	1,976	895	2,871	1,732	354	2,146	555	186	741	4,337	1,441	5,778
Essex street.....	4	.....	4	225	13	238	642	43	685	276	19	235	1,147	75	1,222
Federal street.....	12	5	17	2,291	1,102	3,393	2,446	515	2,941	692	391	1,083	5,421	2,013	7,434
Granite street.....	.....	.....	.....	60	4	64	234	6	240	54	1	55	348	11	359
L street.....	10	8	18	540	190	730	2,255	301	2,556	967	161	1,123	3,772	660	4,432
Malden .....	4	.....	4	306	46	352	1,204	120	1,384	827	134	961	2,401	300	2,701
Meridian street.....	36	15	51	610	43	653	3,615	776	4,391	1,667	287	1,934	5,928	1,121	7,049

Total Number of Carriages.

Total Number of Passengers.

Total.

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Mt. Washington avenue.....	70	18	88	2,621	1,079	3,700	4,558	808	5,426	1,759	545	2,304	9,008	2,510	11,518	2,971	6,505
Neponset.....				62	4	66	237	13	250	57	3	60	356	20	376	60	229
North Beacon street.....																	
North Harvard street.....				86	6	92	265	14	279	67	5	72	418	25	443	75	289
Warren.....	34	8	42	1,385	935	2,320	2,235	772	3,007	1,508	635	2,143	5,162	2,350	7,512	2,143	5,055
Western avenue to Cambridge .....				105	9	114	422	29	451	149	9	158	676	47	723	129	468
Western avenue to Watertown .....				36 .....	..	36 .....	99	3	102	44	1	45	179	4	183	23	123
Totals .....	591	210	801	20,081	7,343	27,424	39,399	7,141	46,540	16,737	4,210	20,947	76,808	18,304	95,712	23,717	62,857

<sup>1</sup>West Boston, Prison Point, Canal (or Craigie's), and Harvard bridges, not included in these tables, being in the care of commissioners representing the two cities (Boston and Cambridge) connected by these bridges.

**Table showing the widths of Openings for Vessels in all Bridges provided with Draws in the City of Boston, Jan. 31, 1897.**

NAME OF BRIDGE.	Location.	Number of Openings.	Width.
Boston & Maine R.R., Eastern Division.....	Boston to Charlestown..	1	39 feet 8 inches.
Boston & Maine R.R., Eastern Division.....	Over Miller's river.....	1	35 " 6 "
Boston & Maine R.R. (freight), Southern Division.....	Boston to East Cambridge.....	1	40 " 2 "
Boston & Maine R.R. (passenger), Southern Division.....	" "	1	39 " 7 "
Boston & Maine R.R., Western Division.....	Boston to Charlestown..	1	39 " 7 "
Boston & Maine R.R., Western Division.....	Over Miller's river.....	1	35 " 10 "
Broadway.....	Over Fort Point channel	1	43 " 3 "
Cambridge street.....	Brighton to Cambridge..	1	36 " 4 "
Canal (or Craigie's).....	Boston to East Cambridge.....	1	36 " 1 "
Charles river.....	Boston to Charlestown..	1	36 " 0 "
Chelsea (south channel).....	Charlestown to Chelsea..	1	38 " 9 "
Chelsea (north channel).....	" "	1	44 " 10 "
Chelsea st. (East Boston side)..	East Boston to Chelsea..	2	36 " 0 "
Chelsea street (Chelsea side)...	" "	..	36 " 0 "
Commercial point (or Tenean).	Dorchester.....	1	24 " 0 "
Congress street (Boston side)...	Over Fort Point channel	2	43 " 3 "
" (South Boston side)	" "	..	43 " 9 "
Dover street.....	" "	..	36 " 10 "
Essex street.....	Brighton to Cambridge..	1	35 " 9 "
Federal street.....	Over Fort Point channel	1	41 " 10 "
Fitchburg R.R.....	Boston to Charlestown..	1	36 " 0 "
Fitchburg R.R. (for teaming freight).....	" "	1	36 " 0 "
Grand Junction R.R.....	Brighton to Cambridge..	1	35 " 9 "
" " .....	East Boston to Chelsea..	1	34 " 6 "
Granite... .	Dorchester to Milton....	1	36 " 0 "

Table showing Width of Openings, etc.—Concluded.

NAME OF BRIDGE.	Location.	Number of Openings.	Width.
Harvard (Boston side).....	Boston to Cambridge....	2	36 feet 6 inches
“ (Cambridge side).....	“ “ ....	..	36 “ 10 “
L street.....	Over Reserved channel, South Boston.....	1	40 “ 0 “
Malden.....	Charlestown to Everett.	1	43 “ 2 “
Meridian st. (East Boston side),	East Boston to Chelsea.	2	59 “ 2 “
“ (Chelsea side).....	“ “ ..	..	59 “ 0 “
Mt. Washington avenue (Boston side).....	Over Fort Point channel	2	42 “ 3 “
Mt. Washington avenue (South Boston side).....	“ “ ..	..	42 “ 3 “
Neponset.....	Dorchester to Quincy...	1	36 “ 0 “
New England R.R. (Boston side),	Over Fort Point channel	2	41 “ 8 “
New England R.R. (South Boston side)..... ..	“ “ ..	..	40 “ 8 “
New England R.R. ....	Over South Bay.....	1	28 “ 4 “
North Beacon street.....	Brighton to Watertown.	1	30 “ 2 “
North Harvard street.....	Brighton to Cambridge.	1	36 “ 0 “
New York, New Haven & Hartford R.R. ....	Over Fort Point channel	1	36 “ 4 “
New York, New Haven & Hartford R.R. ....	Dorchester to Quincy...	1	36 “ 0 “
Prison point.....	Charlestown to Cambridge.....	1	36 “ 0 “
Warren.....	Boston to Charlestown..	1	36 “ 0 “
West Boston (Boston side)....	Boston to Cambridge....	2	35 “ 6 “
“ (Cambridge side). ....	“ “ ....	..	36 “ 6 “
Western avenue.....	Brighton to Cambridge.	1	36 “ 0 “
“ ..... ..	Brighton to Watertown.	1	35 “ 10 “

Table showing Width of Bridges, kind of Roadways, Sidewalks, etc., on Tide-water Bridges, Jan. 31, 1897.

NAME OF BRIDGE.	Width of Bridge. Ft. In.	ROADWAY.		SIDEWALKS.		
		Width. Ft. In.	Kind of roadway.	No.	Width. Ft. In.	
Broadway .....	60 0	40 0	Plank .....	2	10 0	Coal-tar concrete.
Cambridge street.....	40 0	32 2	" .....	1	6 0	Plank.
Canal .....	64 0	48 0	Paved .....	2	8 0	Brick.
Charles river.....	50 0	34 0	" .....	2	8 0	"
Chelsea, North.....	49 0	40 0	" .....	1	8 0	Coal-tar concrete and plank.
" South.....	50 3	41 2	" .....	1	8 0	Plank.
" street.....	30 0	23 2	Plank .....	1	6 0	"
Commercial point....	34 0	about	about	0		
Congress street.....	60 0	44 0	Paved .....	2	8 0	Coal-tar concrete.
Dover st. (over water)	60 0	40 0	" .....	2	10 0	Asphalt.
Essex street.....	31 0	22 8	Plank .....	1	7 6	Plank.
Federal street.....	69 0	49 0	Paved .....	2	10 0	Asphalt.
Granite.....	30 2	24 4	Plank .....	1	5 0	Plank.
Harvard.....	69 4	51 0	" .....	2	9 2	Asphalt.
L street .....	60 0	44 0	Paved .....	2	8 0	"
Malden .....	40 0	32 0	" .....	1	7 0	Coal-tar concrete.
Meridian street.....	50 0	36 0	" .....	2	7 0	" "
Mt. Washington ave..	61 0	39 6	" .....	2	10 9	" "
Neponset .....	30 0	23 10	Plank .....	1	5 5	Plank.
North Reacon street...	31 0	25 2	" .....	1	5 0	"
North Harvard street..	28 2	26 7	" .....	0		
Prison Point.....	50 0	36 0	{ Plank part } { Paved part }	2	7 0	Coal-tar concrete.
Warren.....	80 0	60 0	Paved .....	2	10 0	" "
Western ave. to Cambridge .....	33 2	26 3	Plank .....	1	6 0	Plank.
Western ave. to Watertown .....	33 0	24 2	" .....	1	8 0	"
Winthrop .....	24 2	19 10	" .....	1	3 7	"
West Boston.....	50 0	36 0	Paved .....	2	7 0	Brick.

DRAW-TENDERS' REPORTS.  
Giving the Number of Vessels passing through the Drawbridges controlled by the City of Boston during the Years 1892,  
1893, 1894, 1895 and 1896.

NAME OF BRIDGE.	STREAMERS.					SAILING VESSELS.					TUGS.					ALL OTHERS.					TOTAL NUMBER OF VESSELS.					TOTALS.				
	1892	1893	1894	1895	1896	1892	1893	1894	1895	1896	1892	1893	1894	1895	1896	1892	1893	1894	1895	1896	1892	1893	1894	1895	1896	1892	1893	1894	1895	1896
Broadway .....	8	6	16	22	3,118	2,959	2,800	3,115	3,082	1,709	1,840	1,935	2,179	2,358	626	664	795	816	890	5,461	5,471	5,536	6,226	6,352	29,046					
Cambridge street....	.....	.....	236	149	109	150	133	733	608	523	599	572	269	186	206	181	217	1,238	943	837	930	922	922	4,870						
Charles river.....	29	30	34	45	39	2,800	2,690	2,503	2,815	2,857	2,854	3,175	2,942	3,641	4,121	2,010	2,352	2,492	2,534	7,693	8,247	7,750	8,933	9,551	42,234					
Chelesa (North)....	35	57	66	115	159	717	898	1,141	995	1,169	2,890	3,422	3,841	4,662	4,373	1,205	1,697	1,631	2,383	2,229	4,856	6,074	6,679	8,155	7,930	23,694				
Chelesa (South)....	85	90	51	31	39	1,037	1,130	850	847	1,260	2,923	2,640	1,810	2,275	2,748	986	1,328	1,083	984	914	5,431	5,078	3,794	4,137	4,961	23,901				
Chelsca street.....	.....	6	...	6	4	14	57	24	30	36	35	159	105	163	14	20	116	41	105	54	69	338	170	304	335					
Commercial Point....	.....	.....	.....	.....	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Congress street....	298	361	277	383	292	4,896	4,671	4,080	4,174	4,264	7,647	7,411	7,626	7,886	8,347	2,834	2,694	2,850	2,838	3,059	15,675	15,137	14,833	15,281	15,962	76,888				
Dover street.....	10	6	6	16	20	2,557	2,415	2,855	2,894	2,871	1,505	1,574	1,557	1,999	2,146	544	618	711	712	741	4,616	4,613	4,629	5,621	5,778	25,257				
Essex street.....	13	23	4	...	4	247	180	134	158	238	704	717	639	721	685	287	218	244	242	295	1,251	1,138	1,021	1,121	1,222	5,753				
Federal street....	10	9	6	16	17	3,295	3,199	3,017	3,366	3,393	2,044	2,231	2,261	2,066	2,941	646	703	816	848	1,083	5,935	6,142	6,100	6,896	7,434	32,567				

## Draw-Tenders' Reports.—Concluded.

NAME OF BRIDGE.	STEAMERS.		SAILING VESSELS.		TUGS.		ALL OTHERS.		TOTAL NUMBER OF VESSELS.		TOTALS.																					
	1892	1893	1894	1895	1896	1897	1898	1899	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1890	1891	1892	1893	1894	1895	1896	1897	1898					
Granite street.....	91	109	82	126	64	184	237	220	306	240	19	24	37	41	55	294	370	339	473	359	1,835	1,835	1,835	1,835	1,835	1,835	1,835	1,835	1,835			
L street.....	4	2	18	4	678	541	730	.....	2,754	3,132	2,556	.....	1,535	2,128	1,128	.....	4,971	5,803	4,432	15,296	15,296	15,296	15,296	15,296	15,296	15,296	15,296	15,296				
Malden .....	3	5	8	2	4	215	260	360	273	352	979	1,107	1,226	1,619	1,384	473	478	574	1,236	961	1,670	1,850	2,168	3,130	2,701	2,701	2,701	2,701	2,701	2,701	2,701	2,701
Meridian street....	74	44	47	58	51	851	771	846	818	633	3,351	3,736	4,030	4,046	4,391	1,432	1,746	2,068	2,031	1,954	5,708	6,297	7,011	6,953	7,049	7,049	7,049	7,049	7,049	7,049		
Mt. Washington avenue.....	70	79	87	69	88	3,923	3,822	3,432	3,699	3,700	5,094	4,741	4,782	5,119	5,426	2,199	2,089	2,246	2,229	2,304	11,286	10,731	10,547	11,116	11,518	11,518	11,518	11,518	11,518	11,518		
Neponset .....	.....	.....	183	131	105	148	66	198	244	224	306	250	.....	31	40	47	60	391	406	369	501	376	2,043	2,043	2,043	2,043	2,043	2,043	2,043	2,043	2,043	
No. Beacon street.	1	1	.....	.....	.....	.....	.....	3	1	.....	.....	.....	.....	.....	.....	.....	4	2	.....	.....	.....	.....	6	6	6	6	6	6	6	6	6	
No. Harvard street.....	.....	.....	120	54	64	96	92	272	131	168	224	279	39	36	35	72	431	221	268	355	443	1,718	1,718	1,718	1,718	1,718	1,718	1,718	1,718	1,718		
Warren.....	17	7	63	47	42	2,796	2,655	2,021	2,312	2,320	1,940	1,983	2,124	2,588	3,007	1,470	1,520	1,839	2,007	2,143	6,223	6,165	5,967	6,954	7,512	7,512	7,512	7,512	7,512	7,512	7,512	
Western avenue to Cambridge .....	2	.....	211	132	95	115	114	619	481	426	455	451	228	137	153	136	158	1,058	750	676	736	723	3,943	3,943	3,943	3,943	3,943	3,943	3,943	3,943	3,943	
Watertown avenue to Watertown .....	1	.....	.....	12	6	7	.....	36	15	18	28	7	102	.....	14	20	7	45	28	38	55	14	183	183	183	183	183	183	183	183		
Totals.....	654	710	667	800	801	27,319	26,245	24,797	26,666	27,424	35,709	36,292	39,275	44,605	46,540	15,285	16,555	19,151	21,434	20,947	78,967	79,742	83,890	83,565	95,712	95,712	95,712	95,712	95,712	95,712	95,712	95,712

<sup>1</sup>West Boston, Prison Point, Canal (or Cragie's) and Harvard Bridges not included in these tables, being in the care of commissioners representing the two cities (Boston and Cambridge) connected by these bridges.

## APPENDIX B.

## REPORT OF DEPUTY SUPERINTENDENT OF FERRY DIVISION.

NORTH FERRY, EAST BOSTON, Feb. 1, 1897.

Mr. BENJ. W. WELLS, *Superintendent of Streets*:

DEAR SIR: I respectfully submit the annual report of the expenditures, income, and operations of the Ferry Division of the Street Department for the financial year ending Jan. 31, 1897.

Respectfully yours,

WILLIAM F. McCLELLAN,

*Deputy Superintendent.*

## FINANCIAL STATEMENT.

## REGULAR APPROPRIATIONS.

Appropriation for year ending Jan. 31, 1897 . . . . .	\$218,000 00
Transfers for an illuminated clock at North Ferry, Boston side, viz.:	
From special appropriation for awning . . . . .	\$257 06
From special appropriation for South Drop, South Ferry, Boston side . . . . .	96 09      353 15
Total appropriation . . . . .	\$218,353 15
Amount of expenditures . . . . .	\$217,999 95
Amount for illuminated clock at North Ferry . . . . .	353 15
Amount transferred to Street Cleaning Division . . . . .	05
	\$218,353 15

## OBJECTS OF EXPENDITURE.

Salaries and wages, running expenses . . . . .	\$130,091 68
Salaries and wages, repairs . . . . .	16,172 74
Fuel . . . . .	29,803 55
Current expenses . . . . .	19,028 49
<i>Carried forward,</i>	\$195,096 46

<i>Brought forward,</i>	\$195,096 46
Supplies for running expenses . . . . .	5,696 80
Supplies for repairs . . . . .	3,996 77
Repairs on boats . . . . .	9,232 76
Repairs on buildings, piers and drops . . . . .	3,226 05
Tools and fixtures . . . . .	956 76
Incidental expenditures . . . . .	102 50
Damages to persons and property . . . . .	45 00
Transfer to Street Cleaning Division . . . . .	05
	<u>\$218,353 15</u>

## SPECIAL APPROPRIATIONS.

Appropriation for awning at North Ferry, East Boston . . . . .	\$1,000 00
Less amount transferred to regular appropriation for illuminated clock . . . . .	257 06
	<u>-----</u>
	\$742 94
Appropriation authorized for new ferry landing . . . . .	\$500,000 00
Amount issued . . . . .	<u>-----</u>
	30,000 00
Total available special appropriations . . . . .	<u>\$30,742 94</u>

## OBJECTS OF EXPENDITURE.

*Special Appropriations.*

Awning at North Ferry, East Boston . . . . .	\$742 94
John M. Brooks, contract for building two tanks for drops . . . . .	3,500 00
William McKie, contract for building one ferry drop . . . . .	4,165 00
William McKie, contract for building second ferry drop . . . . .	4,122 50
W. H. Ellis & Co., contract for repairing middle pier, Boston landing, South Ferry . . . . .	1,802 15
Charles I. Albee, contract for one special hoisting motor, with all appliances for hauling teams up ferry drop . . . . .	838 00
Sundry bills . . . . .	7,533 96
	<u>-----</u>
Total expenditures, special appropriations . . . . .	\$22,704 55
Balance unexpended . . . . .	8,038 39
	<u>-----</u>
	\$30,742 94

Total appropriations . . . . .	\$218,353 15
	30,742 94
	—————
Total expenditures . . . . .	\$249,096 09
	241,057 70
Balance unexpended of special appropriations . . .	\$8,038 39

## INCOME.

*Cash Receipts from Feb. 1, 1896, to Feb. 1, 1897.*

## At office of City Collector:

For rent . . . . .	\$2,572 00
re-imbursed damages . . . . .	700 00
free ferries July 4, 1896 . . . . .	25 00
sales of foot-passes . . . . .	432 00
“ “ team tickets . . . . .	77 50

## At Ferry Division office:

For old material sold . . . . .	37 85
For sales of foot-passes . . . . .	856 70
For sales of team tickets . . . . .	533 00

## From Tollmen:

For 11,703,349 foot-passengers at 1c. . . . .	117,033 49
team tickets . . . . .	27,442 00

## From Gatemen:

For 248,080 foot-passengers at 1c. . . . .	2,480 80
teams . . . . .	14,889 18

Total receipts for the year . . . . .	\$167,079 52
---------------------------------------	--------------

## STATEMENT SHOWING RECEIPTS AT EACH FERRY.

*North Ferry.*

From Tollmen.	Foot-passengers, at 1 cent.	Team Tickets.	Total.
No. 2.....	\$11,813 05	\$1,807 00	\$13,620 05
“ 3.....	11,401 27	1,891 50	13,292 77
“ 5.....	11,798 21	2,069 00	13,867 21
“ 6.....	11,359 45	1,777 50	13,136 95
“ 9.....	11,722 71	1,902 00	13,624 71
“ 10.....	11,797 16	1,812 50	13,609 66
“ 13.....	12,399 88	1,652 00	14,051 88
	\$82,291 73	\$12,911 50	\$95,203 23

## From Gatemen:

For 141,516 foot-passengers at 1c. . . . .	\$1,415 16
For teams . . . . .	5,792 36
	—————
	\$7,207 52

Total at North Ferry . . . . .	\$102,410 75
--------------------------------	--------------

*South Ferry.*

From Tollmen.	Foot-passengers, at 1 cent.	Team Tickets.	Total.
No. 1.....	\$8,127 56	\$3,423 00	\$11,550 56
" 4 .....	7,920 18	3,401 00	11,321 18
" 7 .....	8,386 82	3,653 50	12,040 32
" 8 .....	8,049 66	3,686 00	11,735 66
" 11.....	1,012 80	94 50	1,107 30
" 12.....	1,244 74	272 50	1,517 24
	\$34,741 76	\$14,530 50	\$49,272 26

## From Gatemen:

For 106,564 foot-passengers, at 1c.	\$1,065 64
For teams . . . . .	9,096 82
	_____
	\$10,162 46
Total at South Ferry . . . . .	\$59,434 72
North and South Ferries, as above . . . . .	\$161,845 47
Tickets at office of City Collector . . . . .	509 50
Tickets at office of Ferry Division . . . . .	1,389 70
Rent . . . . .	2,572 00
Damages, old material and free ferries, July 4 . . . . .	762 85
Total receipts for year 1896 . . . . .	\$167,079 52

## CASH STATEMENT.

*From Feb. 1, 1896, to Feb. 1, 1897.**Dr.*

To cash received . . . . .	\$167,079 52
	_____
	<i>Cr.</i>
By amount paid City Collector . .	\$167,056 74
By amount rejected money . .	11 39
By balance on hand . .	11 39
	_____
	\$167,079 52

## STATEMENT OF THE RECEIPTS.

*From April 1, 1870 (date of purchase by the City of Boston  
of the East Boston Ferries), to Feb. 1, 1897.*

Cash received for tolls from April 1, 1870, to Feb. 1, 1893 . .	\$3,779,486 03
<i>Carried forward,</i>	\$3,779,486 03

<i>Brought forward,</i>	3,779,486 03
Cash received for tolls from Feb. 1, 1893, to Feb. 1, 1894 . . .	149,388 61
Cash received for tolls from Feb. 1, 1894, to Feb. 1, 1895 . . .	152,950 04
Cash received for tolls from Feb. 1, 1895, to Feb. 1, 1896 . . .	166,307 33
Cash received for tolls from Feb. 1, 1896, to Feb. 1, 1897 . . .	163,769 67
	<hr/>
Cash received for rent . . .	\$42,871 30
Cash received for old boats . . .	15,246 71
Cash received for old material, etc.	9,061 98
	<hr/>
	66,679 99
Total receipts for 26 years 10 months . . .	<u>\$4,478,581 67</u>

## CASH STATEMENT.

*From April 1, 1870, to Jan. 31, 1897.**Dr.*

To receipts from all sources . . . . .	<u>\$4,478,581 67</u>
--	-----------------------

*Cr.*

By amount paid City Collector .	\$4,477,897 97
By cash with tollmen and gate- men as capital . . . . .	608 00
By counterfeit and rejected money in 26 years and 10 months . . . .	64 31
By balance on hand . . . . .	11 39
	<hr/>
	<u>\$4,478,581 67</u>

## EXPENDITURES.

*From March 4, 1857, to April 1, 1870.*

Amount charged to the East Boston ferries by Auditor pre-  
vious to purchase:

For avenues . . . .	\$250,000 00
For repairs . . . .	65,815 68
	<hr/>
For ferry property, purchased April 1, 1870 . . . .	276,375 00
	<hr/>
From April 1, 1870, to Feb. 1, 1893,	\$5,214,551 71
From Feb. 1, 1893, to Feb. 1, 1894,	249,370 65
	<hr/>
<i>Carried forward,</i>	\$5,463,922 36
	<hr/>
	\$592,190 68

<i>Brought forward,</i>	5,463,922	36	\$592,190	68
From Feb. 1, 1894, to Feb. 1, 1895,	224,441	04		
From Feb. 1, 1895, to Feb. 1, 1896,	221,813	94		
From Feb. 1, 1896, to Feb. 1, 1897,	241,057	70		
			6,151,235	04
				6,743,425 72

## DEDUCT.

Amount paid to City Treasury . . . . .	4,477,897	97
Net cost of ferries to city to date, not including interest on loans . . . . .	\$2,265,527	75

STATEMENT SHOWING THE ACTUAL STANDING OF FERRY  
DIVISION, STREET DEPARTMENT, WITH THE CITY OF BOSTON,  
FEB. 1, 1897.*Dr.*

Amount paid previous to April 1, 1870 . . . . .	\$592,190	68
Amount paid from April 1, 1870, to Feb. 1, 1897, as follows:		
Seven new ferry steamers . . . . .	371,956	04
New piers, buildings and drops . . . . .	379,818	35
Fuel . . . . .	916,232	60
Repairs of all kinds . . . . .	664,539	28
Salaries and wages . . . . .	2,939,147	12
Tools and fixtures . . . . .	12,877	44
Land from Lincoln wharf in 1887 . . . . .	5,562	52
Land from Battery wharf in 1893 . . . . .	10,000	00
All other expenses . . . . .	851,101	69
	\$6,743,425	72

*Cr.*

By amount paid the city for income . . . . .	\$4,477,897	97
" amount charged to ferry property for avenues that were laid out as streets, August, 1880, and which should be credited to this division,	250,000	00
" paving avenues . . . . .	11,530	84
" amount received for rents previous to Jan. 1, 1881, by Department of Public Buildings, and should be credited to this division . . . . .	60,277	56
" estimated value of seven ferry steamers . . . . .	\$188,175	53
" less 6 per cent for depreciation, . . . . .	11,290	53
<i>Carried forward,</i>	176,885	00
	4,976,591	37

<i>Brought forward,</i>	\$4,976,591 37
By estimated value of real estate and franchise as per last re- port . . . . .	\$627,600 00
" added for improvement during year . . . . .	21,900 00
	<hr/>
" value of awning, North ferry, East Boston . . . . .	649,500 00
" new ferry landing, not yet charged off . . . . .	742 94
" land from Lincoln wharf . . . . .	61 61
" land from Battery wharf . . . . .	5,562 52
" estimated value of tools and fixtures . . . . .	10,000 00
" estimated value of fuel on hand . . . . .	6,000 00
" estimated value of supplies for maintenance . . . . .	5,798 52
" estimated value of supplies for repairs . . . . .	361 91
" amount expended on Eastern-avenue wharf . . . . .	3,092 90
" cash with employees as capital . . . . .	1,499 46
" cash on hand . . . . .	608 00
" cash on hand . . . . .	11 39
" transfer to Street-Cleaning Division . . . . .	05
" profit and loss for 26 years 10 months . . . . .	1,083,595 05
	<hr/>
	\$6,743,425 72

STATEMENT SHOWING THE DIFFERENCE OF TRAVEL ON THE  
FERRIES FROM FEB. 1, 1896, TO FEB. 1, 1897.

	North.	South.
Foot passengers, at 1 cent each . . . . .	8,229,173	3,474,176
Foot passengers by ticket . . . . .	82,871	47,267
	<hr/> <hr/> 8,312,044	<hr/> <hr/> 3,521,443
One-horse teams . . . . .	218,078	203,144
Two-horse teams . . . . .	76,254	122,600
Three-horse teams . . . . .	3,403	4,547
Four-horse teams . . . . .	4,623	9,165
Two-horse carriages and hacks . . . . .	5,238	2,672
Two-cent toll (at gate) handcarts, etc. . . . .	4,175	4,146
Four-cent toll . . . . .	118,729	188,527
Six-cent toll . . . . .	3,608	4,781
Seven-cent toll . . . . .	2	3
Eight-cent toll . . . . .	7,865	12,587
Ten-cent toll . . . . .	454	886
Thirteen-cent toll . . . . .	471	643
Fifteen-cent toll . . . . .	31	28
Twenty-cent toll . . . . .	1	—
Thirty-cent toll . . . . .	8	8
Free teams . . . . .	3,824	1,407
Free foot . . . . .	32,086	910

**Total Travel on both Ferries from Jan. 1, 1891, to Feb. 1, 1897.**

	(13 mos.) 1891.	From Feb. 1, 1892, to Feb. 1. 1893.	From Feb. 1, 1893, to Feb. 1, 1894.	From Feb. 1, 1894, to Feb. 1, 1895.	From Feb. 1, 1895, to Feb. 1, 1896.
One-horse teams.....	727,170	689,978	665,967	690,427	676,294
Two-horse teams.....	228,287	219,354	202,323	204,667	248,291
Three-horse teams.....	4,639	6,547	7,573	6,242	9,095
Four-horse teams.....	14,273	13,180	16,641	14,503	16,939
Two-horse carriages and hacks,	19,189	17,598	16,340	16,236	10,349
Two-cent tolls for hand-carts, etc.....	7,196	6,632	6,259	5,726	7,059
Drag-wheels, etc.....	62	85	88	57	101
Foot-passengers .....	11,686,505	11,095,832	10,988,027	11,281,321	11,929,790

*From Feb. 1, 1896, to Feb. 1, 1897.*

Foot passengers, at 1 cent each, toll and gate and ticket . . . . .	12,081,567
Two-cent tolls . . . . .	8,321
Four-cent tolls . . . . .	307,256
Six-cent tolls . . . . .	8,889
Seven-cent tolls . . . . .	5
Eight-cent tolls . . . . .	20,452
Ten-cent tolls . . . . .	1,340
Thirteen-cent tolls . . . . .	1,114
Fifteen-cent tolls . . . . .	59
Twenty-cent tolls. . . . .	1
Thirty-cent tolls . . . . .	16
One-horse pleasure carriages . . . . .	61,170
Two-horse pleasure carriages . . . . .	7,910
One-horse teams . . . . .	365,052
Two-horse teams . . . . .	198,854
Three-horse teams . . . . .	7,950
Four-horse teams . . . . .	13,788
Free teams . . . . .	5,231
Free foot . . . . .	32,996

**TICKET STATEMENT.**

Foot-passes outstanding Feb. 1, 1896 . . . . .	187,777
Foot-passes sold during the year . . . . .	128,870
Foot-passes delivered on requisitions to other divisions . . . . .	7,200
	323,847
Received and destroyed during this year . . . . .	130,138
Outstanding Feb. 1, 1897 . . . . .	193,709

**Team Tickets.**

	1-Horse.	2-Horse.	3-Horse.	4-Horse.
Outstanding Feb. 1, 1896.....	51,533	30,135	1,986	4,344
Sold during the year.....	367,888	199,968	7,974	14,380
Delivered on requisitions.....	2,080	304		
	421,501	230,407	9,960	18,724
Received and destroyed during the year.....	365,052	198,854	7,950	13,788
Outstanding Feb. 1, 1897.....	56,449	31,553	2,010	4,936

**Pleasure Carriage Tickets.**

	1-Horse.	2-Horse.
Outstanding Feb. 1, 1896.....	14,129	2,828
Sold during the year.....	62,500	7,860
Delivered on requisitions.....	760	
	77,389	10,688
Received and destroyed during the year.....	61,170	7,910
Outstanding Feb. 1, 1897.....	16,219	2,778

## APPENDIX C.

REPORT OF DEPUTY SUPERINTENDENT OF  
PAVING DIVISION.

ROOM 44, CITY HALL, BOSTON, Feb. 1, 1897.

MR. BENJ. W. WELLS, *Superintendent of Streets:*

DEAR SIR: I respectfully submit my annual report of the expenditures and income of the Paving Division of the Street Department for the financial year ending Jan. 31, 1897, showing the nature of the work, the number and variety of permits issued, and the details of expenditures involved in paving, macadamizing, and regulating the various streets.

Respectfully yours,

JOHN L. KELLY,

*Deputy Superintendent.*

The following table shows the amount expended for maintenance of the Paving Division and from special appropriations derived from loans for the last six (6) years, not including the cost of street-watering, to be found on another page:—

	Maintenance.	Specials.	Totals.
1891 (13 months)	\$872,936 40	\$1,014,324 26	\$1,887,260 66
1892.....	915,460 99	962,889 09	1,878,350 08
1893.....	745,681 52	707,801 49	1,453,483 01
1894.....	715,608 62	839,713 78	1,555,322 40
1895.....	683,899 42	823,011 70	1,506,911 12
1896.....	628,675 46	1,755,176 71	2,388,852 17

There was appropriated for the maintenance of this division during the year the sum of \$630,000.

The large amount of money expended under special appropriations in 1896 was due to the construction of the street surfaces on the boulevards, a large part of which was done this year.

The Paving Division has charge of the following work:—

The maintenance of street surfaces and sidewalks.

The placing of street signs.

The numbering of buildings.

The issuing of permits to open or occupy the streets, or for such other purpose as may be required under the ordinances.

The removal of snow and ice from the streets, gutters and plank walks.

The cleaning of streets in the outlying sections of the city not covered by the Street-Cleaning Division.

The division is in charge of a deputy superintendent, with office in City Hall, and with a clerical force under the direction of a chief clerk.

The outdoor working force of the division is divided into ten districts, each in charge of a foreman, as follows:—

- No. 1, South Boston.
- No. 2, East Boston.
- No. 3, Charlestown.
- No. 4, Brighton.
- No. 5, West Roxbury.
- No. 6, Dorchester.
- No. 7, Roxbury.
- Nos. 8, 9, 10, City Proper.

The Permit Office is an important branch of the work of the division, and is in charge of a clerk, the outdoor force of inspectors being under a Superintendent of Inspectors. During the past year 11,239 permits for street openings were issued, and  $229\frac{7}{10}$  miles of trench opened. The importance of the work of this office can be readily seen from the fact that dependent on its vigilance is the proper maintenance of the surfaces of streets where openings have been made. In case of trench openings, an inspector is assigned on the work, and his time charged to the corporation. Service and repair openings are regularly inspected, and, in case of settlement or improper paving, the companies are notified; and if work is not properly attended to, the department replaces the pavement, and a bill is sent to the company responsible for the defect.

The inspectors also look after the permits for the occupancy of streets for building purposes, and see to it that proper fences and walks are placed as called for by the permit.

In addition to street permits, there were issued by this division permits for various other purposes to the number of 16,882.

No opening in the street can be made except by permit. These permits are collected by the police, and returned to the office. A change was instituted this year in the method of returning emergency permits. Formerly, in case of gas leak, water break or other causes requiring immediate action, the companies were allowed to make the opening, showing a general emergency permit to the police, and making their own returns to the office. This year a form of emergency permit was issued, for which the companies pay, and, in case of opening, give up to the police a permit with date and location filled in by themselves. In this way, the openings are better regulated, and there is no possibility of a street being disturbed without authority.

The work of placing street signs has this year been very considerably increased from the fact that, owing to the redistricting

of the city wards, many of the signs bearing the ward numbers required to be changed.

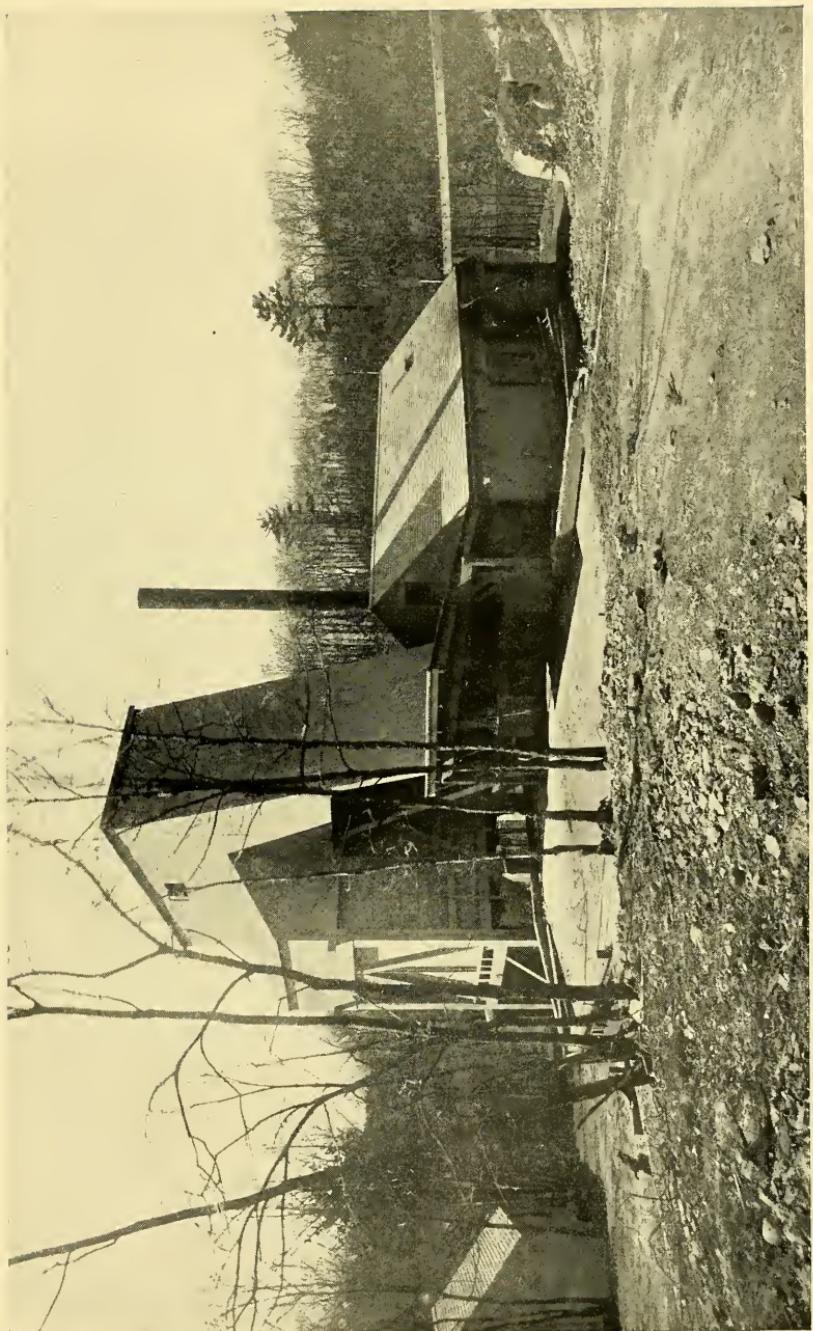
The cost of the removal of snow and ice is charged to the regular maintenance appropriation. I believe it would be advisable that a separate appropriation be made for this work, so that a comparison made from year to year of the cost of the maintenance of the streets would have some value. Under the present system, a comparison of figures is of little value, as the item for the removal of snow may vary many thousands of dollars from one year to another.

At the present time the department is running with a smaller appropriation for maintenance than at any time since the consolidated department was organized, although there is a greater amount of streets to be cared for. The practice of appropriating \$25,000 for each ward for so-called ward improvements—meaning work of a more or less permanent nature—is in some respects an improper one, for the reason that, without regard to the size or character of the ward, the amount appropriated is the same; and with the small maintenance appropriation and the large amount of work oftentimes to be done in one ward with \$25,000, it is not possible to do the work in the most thorough and economical manner. Macadam streets, in districts where conditions have so changed that the maintenance of a macadam roadway is exceedingly expensive, are reconstructed of the same material, for the reason that sufficient funds for granite or asphalt paving are not available. Thus the cost in a series of years is excessive.

A large loan should be authorized for thoroughly repaving certain sections of the city, and the tax-payers would be the great gainers in the end. In cities where the residential portions are almost exclusively asphalted, the maintenance cost is comparatively small; whereas in Boston, the residential sections of the city, even to the very edge of the downtown district being macadam, the condition is always more or less unsatisfactory, and the expense of maintenance comparatively enormous. If the ordinances were enforced with regard to heavy loads on teams, and the wagons were compelled to have a broader tire, the life of our macadam roads would be somewhat longer.

Great attention has been given this year to the stone-crushing plants, and two new ones have been established and paid for out of the regular maintenance money. This is an important feature of the Paving Division work, and from the city crushers nearly all the stone required on the streets is furnished. This insures a good quality of stone at a reasonable price, and makes it possible to maintain the labor of the division on a permanent basis, as in winter a large portion of the force can be worked in the ledges and are immediately available for snow and street-cleaning work. The labor force of the division for the year 1896 has been in the neighborhood of 900 men constantly employed.

CENTRE-STREET CRUSHER—WEST ROXBURY.





Certain of the stables are in need of repairs and additions, as a larger proportion of the teaming might be done with city teams if accommodations were provided for the horses.

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### FINANCIAL STATEMENT.

#### REGULAR APPROPRIATION.

Appropriation for 1896-97 . . . . .	\$630,000 00
Amount collected by City Collector for repairs made by Paving Division for different companies, etc. . . . .	2,472 85
	<hr/>
	\$632,472 85
Amount of expenditures from Feb. 1, 1896, to Jan. 31, 1897, . . . . .	\$628,675 46
Transferred to Street Cleaning Division . . . . .	2,961 85
Transferred to Boston and Cambridge bridges . . . . .	835 54
	<hr/>
	\$632,472 85
	<hr/>

Objects of Expenditure from the Regular Appropriation, Classified by Districts, from Feb. 1, 1896, to Jan. 31, 1897.

Districts.	Repairs.	Snow.	Edgestones, Sidewalks, and Crossings.	Fences and Plank-walks.	Miscellaneous.	B. Executions of Court,	C. In Excess of Special Appropriation.	D. New Work.	Total.
1. South Boston . . . . .	\$10,287 23	\$6,087 75	\$7,377 59	\$1,635 52	.....	.....	.....	.....	\$25,388 09
2. East Boston . . . . .	13,132 89	4,222 30	5,001 92	357 39	.....	.....	\$856 70	.....	23,571 20
3. Charlestown . . . . .	11,149 01	6,301 40	3,909 27	546 11	.....	.....	.....	.....	21,905 79
4. Brighton . . . . .	56,019 66	1,106 00	2,613 91	777 62	.....	.....	18,678 69	.....	79,195 88
5. West Roxbury . . . . .	44,579 47	6,604 30	1,730 34	1,631 32	.....	.....	5,080 75	.....	59,626 18
6. Dorchester . . . . .	75,842 35	4,464 80	10,711 25	1,494 26	.....	.....	219 36	.....	92,732 02
7. Roxbury . . . . .	66,509 42	5,816 23	15,552 07	2,296 68	.....	.....	2,026 03	.....	92,200 43
8, 9, 10. City proper. . . . .	69,685 52	34,138 29	19,315 67	2,358 69	.....	.....	9,586 42	\$4,822 69	139,907 28
					\$93,606 68	.....	.....	.....	93,606 68
						\$541 91	.....	.....	541 91
Totals. . . . .	\$347,205 55	\$68,741 07	\$66,212 02	\$11,097 59	\$93,606 68	\$541 91	\$36,447 95	\$4,822 69	\$628,675 46

A. See Schedule A for items. B. See Schedule B for items. This schedule shows amount of money spent in excess of the

c. This schedule shows amount of money spent in excess of the amounts appropriated.

the special appropriation, and taken from the maintenance appropriation; for items, see

Special appropriation; and taken from the manufacture appropriation; for return, see

## FINANCIAL STATEMENT.

## SPECIAL APPROPRIATIONS, PAVING AND STREET IMPROVEMENTS.

Amounts of balances 1895-96, less	
transfers . . . . .	\$328,437 53
Amount of appropriations, 1896-97	869,690 40
	—————
Amount of expenditures . . . . .	\$1,198,127 93
Balance unexpended . . . . .	877,095 90
	—————
Balance unexpended . . . . .	<u>\$321,032 03</u>

## TOTAL EXPENDITURES.

Maintenance appropriation . . . . .	\$628,675 46
Special appropriations . . . . .	877,095 90
Laying out and construction of highways . . . . .	174,961 88
Blue Hill and other avenues . . . . .	703,118 93
	—————
Grand total . . . . .	<u>\$2,383,852 17</u>

## INCOME.

Statement showing the amount of bills deposited with the City Collector from Feb. 1, 1896, on account of the Paving Division:

Edgestone and sidewalk assessments . . . . .	\$14,848 33
Miscellaneous . . . . .	2,615 85
	—————
	<u>\$16,964 18</u>

The amount paid into the city treasury during the year on account of the Paving Division is as follows:

Sidewalk construction assessments (law of 1892),	\$38,256 89
Edgestone and sidewalk assessments (law of 1893),	\$14,127 46
Miscellaneous . . . . .	2,615 85
	—————
	<u>\$55,000 20</u>

## SCHEDULE A.

## EXPENDITURES. (Details.)

Salaries of Paving Division office, Feb. 1, 1896, to Jan. 31, 1897 . . . . .	\$13,348 74
Salaries of Permit Office, Feb. 1, 1896, to Jan. 31, 1897 . . . . .	16,772 56
Salaries of engineers, Feb. 1, 1896, to Jan. 31, 1897 . . . . .	2,878 38
Advertising in and subscribing for daily papers . .	421 21
Horses, carts and harnesses . . . . .	8,330 36
Printing and stationery . . . . .	2,518 54
Repairing stables, sheds, etc. . . . .	3,249 20
Stock and supplies not included elsewhere . . . .	6,863 79
Sundries . . . . .	11,008 61
Street signs and numbering . . . . .	718 59
Telephones, expenses of . . . . .	1,702 08
Tools, cost of keeping the same in repair, etc. . .	11,871 36
Construction of Centre-street crusher . . . . .	7,976 38
Construction of Bleiler's crusher . . . . .	5,946 88
	<hr/>
	\$93,606 68

## SCHEDULE B.

## EXECUTIONS OF COURT, ETC.

Bennett, William H., settlement of claim . . . .	\$41 91
Casey, Michael, personal injuries . . . . .	125 00
Clarke, Cordelia B., personal injuries . . . .	350 00
White, Sophie E., personal injuries . . . .	25 00
	<hr/>
	\$541 91

## SCHEDULE C.

The following schedule shows the expenditure from the maintenance appropriation of this division in excess of special appropriations :

**Bennington and Walley streets.**

In excess of special appropriation . . . . .	\$856 70
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**Bigelow street, between Faneuil and Brooks streets.**

In excess of special appropriation . . . . .	6,356 36
--	----------

**Washington street, between Fairbanks street and  
Oak square.**

In excess of special appropriation . . . . .	10,485 53
--	-----------

<i>Carried forward</i> . . . . .	\$17,698 59
----------------------------------	-------------

<i>Brought forward</i>	. . . . .	\$17,698 59
<b>Elmira street</b> , between Murdock and Aetna streets.		
In excess of special appropriation . . . . .	696 30	
<b>Leicester street</b> , between Washington and Surrey streets.		
In excess of special appropriation . . . . .	488 40	
<b>Rockland street</b> , between Washington and Chestnut Hill avenue.		
In excess of special appropriation . . . . .	652 10	
<b>Canterbury street</b> .		
In excess of special appropriation . . . . .	613 50	
<b>Center street</b> , between Spring street and Dedham line		
In excess of special appropriation . . . . .	1,299 07	
<b>Howland street</b> , entire length.		
In excess of special appropriation . . . . .	995 56	
<b>Sycamore street</b> .		
In excess of special appropriation . . . . .	245 90	
<b>Walk Hill street</b> , Harvard street to Mt. Hope Cemetery.		
In excess of special appropriation . . . . .	139 20	
<b>Corey street</b> between Weld and Montview streets.		
In excess of special appropriation . . . . .	229 07	
<b>Lamartine street</b> , between Green and Paul Gore streets.		
In excess of special appropriation . . . . .	55 13	
<b>Boylston street</b> , between Washington street to Boylston avenue.		
In excess of special appropriation . . . . .	285 29	
<b>Creighton street</b> .		
In excess of special appropriation . . . . .	454 17	
<b>Weld street</b> , between Arnold and Ruskin streets.		
In excess of special appropriation . . . . .	763 86	
<b>Norfolk street</b> , between Elizabeth and Walk Hill streets.		
In excess of special appropriation . . . . .	219 36	
<b>Island street</b> .		
In excess of special appropriation . . . . .	536 53	
<b>Massachusetts avenue</b> , between Swett and Albany streets.		
In excess of special appropriation . . . . .	186 58	
<i>Carried forward</i>	. . . . .	\$25,558 61

<i>Brought forward</i>	. . . . .	\$25,558 61
<b>Eustis street.</b>		
In excess of special appropriation	. . . . .	537 74
<b>Magazine street.</b>		
In excess of special appropriation	. . . . .	137 31
<b>Fellows street.</b>		
In excess of special appropriation	. . . . .	107 00
<b>Sherman street.</b>		
In excess of special appropriation	. . . . .	246 52
<b>Howland street.</b>		
In excess of special appropriation	. . . . .	274 35
<b>St. Botolph street, Irvington street and Massachusetts avenue.</b>		
In excess of special appropriation	. . . . .	1,613 25
<b>Boylston and Exeter streets.</b>		
In excess of special appropriation	. . . . .	4,460 55
<b>Beacon street, Massachusetts avenue to Commonwealth avenue.</b>		
In excess of special appropriation	. . . . .	1,936 88
<b>Brookline avenue.</b>		
In excess of special appropriation	. . . . .	173 36
<b>Arlington street, between Boylston and Marlboro streets.</b>		
In excess of special appropriation	. . . . .	165 24
<b>Dartmouth street, between Copley square and New York, New Haven and Hartford railroad</b>		
In excess of special appropriation	. . . . .	159 67
<b>Berkeley street, between Boylston and Beacon streets.</b>		
In excess of special appropriation	. . . . .	903 64
<b>Yarmouth street.</b>		
In excess of special appropriation	. . . . .	173 83
		<hr/>
		\$36,447 95

## SCHEDULE D.

## NEW WORK.

**Clarendon street,** Boylston street to Beacon street, macadamized, edgestones reset, sidewalks relaid, crossings relaid, gutters repaved.

Labor	. . . . .	\$1,202 90
Teaming	. . . . .	1,261 50

<i>Carried forward</i>	. . . . .	\$2,464 40
------------------------	-----------	------------

<i>Brought forward</i>	.	.	.	.	.	\$2,464 40
Steam roller	.	.	.	.	.	200 00
Flagging	.	.	.	.	.	163 28
Gravel and sand	.	.	.	.	.	238 06
Stone	.	.	.	.	.	1,756 65
						<hr/>
						\$8,422 69

*DETAIL OF EXPENDITURES MADE UNDER SPECIAL APPROPRIATIONS.*

<b>Bennington and Walley streets</b> , filled, plank sidewalks laid.						
Labor	.	.	.	.	.	\$2,419 04
Teaming	.	.	.	.	.	1,347 00
Filling	.	.	.	.	.	7,876 80
Gravel	.	.	.	.	.	1,568 93
Lumber	.	.	.	.	.	233 30
Nails	.	.	.	.	.	17 61
Advertising	.	.	.	.	.	7 20
						<hr/>
						\$13,469 88

<b>Amount of appropriation for Bennington and Walley streets</b>	.	.	\$11,924 90
<b>Amount paid out of Street Improvements, Ward 1</b>	.	.	688 28
<b>Amount paid out of Paving Division</b>	.	.	856 70
			<hr/>
			\$13,469 88

<b>Centre street</b> , Dorchester, reconstruction (work unfinished).						
Labor	.	.	.	.	.	\$545 10
Teaming	.	.	.	.	.	316 00
Advertising	.	.	.	.	.	6 00
						<hr/>
						\$867 10

<b>Columbus avenue</b> , Massachusetts avenue to Northampton street, asphalted. Area 1,827 square yards.						
Labor	.	.	.	.	.	\$1,179 90
Teaming	.	.	.	.	.	358 00
Gravel	.	.	.	.	.	175 10
Sand	.	.	.	.	.	480 40
Paving	.	.	.	.	.	151 14
Amount paid to J. J. Sullivan:						
3,624 square yards excavation, at 25 cents	.	.	.	.	.	906 00
Amount paid to Barber Asphalt Paving Co.:						
1,827.4 square yards asphalt, at \$2.90	.	.	.	.	.	3,849 46
						<hr/>
						\$7,100 00
<b>Amount of special appropriation</b>	.	.	.	.	.	<hr/>
						\$7,100 00

**Commonwealth avenue, construction.**

Labor, including engineering and inspection.	\$14,094	80
Teaming . . . . .	16,848	50
Stone . . . . .	30,086	09
Gravel . . . . .	5,933	00
Filling . . . . .	774	50
Loam . . . . .	5,859	60
85,315 gutter blocks . . . . .	3,869	94
250 feet flagging . . . . .	145	74
682 4-12 feet straight edgestone . . . . .	428	16
340 7-12 feet circular edgestone . . . . .	442	76
23 large corners . . . . .	128	80
Carting edgestone . . . . .	13	40
Fuel . . . . .	757	61
Lumber . . . . .	438	24
Hardware, nails, hammers and shovels . . . . .	134	67
Steam drills . . . . .	123	79
Repairing engine and boiler . . . . .	289	81
Metal coating . . . . .	87	50
Oil . . . . .	123	44
Water for crusher . . . . .	26	60
Repairing crusher platform . . . . .	60	00
Executions of Court . . . . .	14,631	69
Steam rolling . . . . .	1,637	00
Planing machine . . . . .	120	00
Use of engine . . . . .	39	75
Watering cart . . . . .	100	00
Sundries . . . . .	70	36
Amount paid to James Grant & Co.:		
603 square yards block paving laid . . . . .	\$150	75
1,894 square yards barrel paving laid . . . . .	662	90
892 feet edgestone set . . . . .	71	36
23 square yards crossings laid . . . . .	5	75
	<hr/>	
	\$890	76
Less 9 days' use of steam roller, at \$15.00 . . . . .	135	00
	<hr/>	
	755	76
	<hr/>	
Work done by Bridge Division . . . . .	\$97,511	51
Work done by Sewer Division . . . . .	32,732	90
	<hr/>	
	226	92
	<hr/>	
	\$130,471	33

**Congress and L streets.**

Work done by the Sewer Division . . . . .	<hr/>	\$7,608	17
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**Eleanor and Ridgemont streets,** Ward 25, resurfaced, sidewalks built.

Labor . . . . .	\$98 10
Advertising . . . . .	12 75
	<hr/>
	\$110 85

**Elmira street,** Ward 25, graded and macadamized. Length, 340 feet; area, 982 square yards.

Labor . . . . .	\$440 60
Teaming . . . . .	148 00
Filling . . . . .	291 00
Gravel . . . . .	113 90
Advertising . . . . .	6 50
Stone . . . . .	696 30
	<hr/>
	\$1,696 30

Amount of appropriation for Elmira street . . . . . \$1,000 00

Amount paid out of Paving Division . . . . . 696 30

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\$1,696 30

**Franklin street,** Ward 25 (work unfinished).

Labor . . . . .	\$73 60
Teaming . . . . .	12 00
Advertising . . . . .	13 88
	<hr/>
	\$99 48

**Hanover street,** between Charter and Tileston streets, asphalted, area, 923 square yards.

Length, 315 feet.	
Labor . . . . .	\$946 75
Teaming . . . . .	585 00
Gravel and sand . . . . .	190 88
75 ft. edgestone and 2 small corners . . . . .	53 20
25,000 paving bricks . . . . .	237 50
Flagging . . . . .	10 44
Blocks . . . . .	77 18
Pebbles . . . . .	81 11
Paving . . . . .	161 16
Masonry . . . . .	42 00
Templets . . . . .	16 28
Advertising . . . . .	16 25

Amount paid to Boston Asphalt Co.

923.4 square yards Sicilian rock asphalt on concrete base, including granite block brows, at \$3.00 2,770 20

*Carried forward* . . . . . \$5,187 95

<i>Brought forward</i>	.	.	.	.	.	\$5,187 95
Amount retained from Boston Asphalt Co.	.	.	.	.	.	138 51
						<hr/>
						\$5,049 44
Amount of appropriation for Hanover						
street	.	.	.	.	.	\$3,827 66
Amount paid out of Street Improvements,						
Ward 6	.	.	.	.	.	1,221 78
						<hr/>
						\$5,049 44

**Leicester street**, between Washington and Surrey streets, graded, macadamized, sidewalks built. Length, 413 feet; area, 1,193 square yards.

Labor	.	.	.	.	.	.	\$1,063 85
Teaming	.	.	.	.	.	.	.674 00
Gravel	.	.	.	.	.	.	69 70
Steam drilling	.	.	.	.	.	.	70 50
Advertising	.	.	.	.	.	.	12 75
Stone	.	.	.	.	.	.	567 60
Steam roller	.	.	.	.	.	.	30 00
							<hr/>
							\$2,488 40

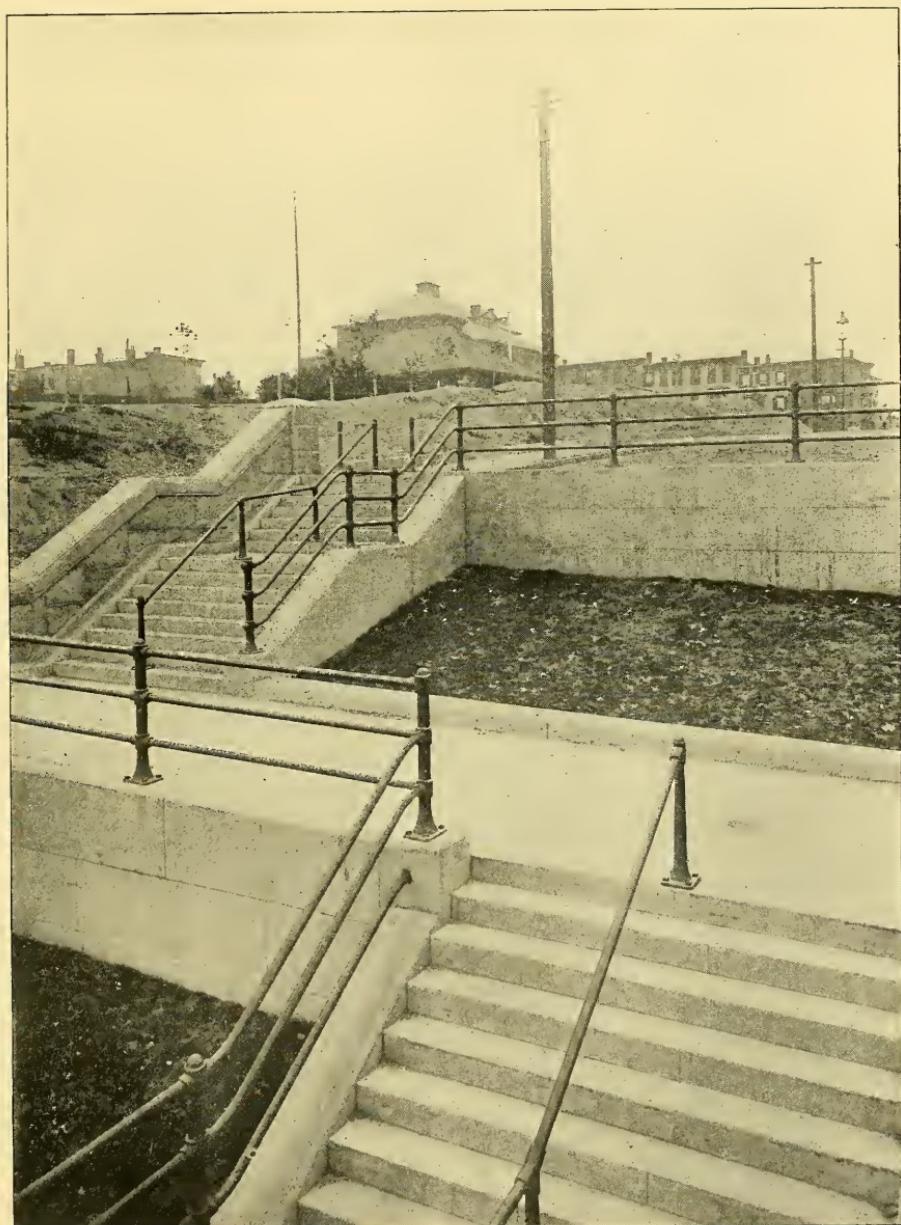
Amount of appropriation for Leicester						
street	.	.	.	.	.	\$2,000 00
Amount paid out of Paving Division	.	.	.	.	.	488 40
						<hr/>

**McLellan street**, Old road to White street, macadamized, sidewalks built, four catch basins built.

Labor	.	.	.	.	.	.	\$745 20
Teaming	.	.	.	.	.	.	1,018 00
Gravel	.	.	.	.	.	.	114 84
Stone	.	.	.	.	.	.	1,195 59
Steam roller	.	.	.	.	.	.	140 00
Lumber	.	.	.	.	.	.	62 31
Advertising	.	.	.	.	.	.	8 00
							<hr/>
Work done by the Sewer Division	.	.	.	.	.	.	\$3,283 94
							<hr/>
							772 90
							<hr/>
							\$4,056 84

**Orleans street**, Maverick street to Gove street, repaved. Length, 258 feet; area, 917 square yards.

Labor	.	.	.	.	.	.	\$857 90
Flagging	.	.	.	.	.	.	144 00
							<hr/>
<i>Carried forward</i>	.	.	.	.	.	.	\$1,001 90



**QUINCY STREET, CHARLESTOWN—SHOWING ARTIFICIAL STONE  
RETAINING WALLS, STEPS AND PLATFORMS.**



<i>Brought forward</i>	.	.	.	.	.	.	\$1,001 90
Crossing blocks	.	.	.	.	.	.	540 00
Teaming	.	.	.	.	.	.	499 00
Stone	.	.	.	.	.	.	340 00
Gravel	.	.	.	.	.	.	357 65
Advertising	.	.	.	.	.	.	5 00
Amount paid to Ward & Conlin:							
243 feet edgestone set	.	.	.	.	\$19 44		
1,392.9 square yards block paving laid	.				348 23		
197.3 " " brick "	.	.	.	.	35 51		
						—	403 18
							—
							\$3,146 73
Amount of appropriation for Orleans street	.	.	.	.	\$2,578 80		
Amount paid out of street improvements, Ward 2	.	.	.	.	567 93		
						—	\$3,146 73
							—

Quincy street, Ward 4, laying out and construction, including granolithic stone steps. (Now St. Martin street.)							
Labor	.	.	.	.	.	.	\$4,437 76
Teaming	.	.	.	.	.	.	603 00
Stone	.	.	.	.	.	.	275 80
Gravel	.	.	.	.	.	.	183 38
Masonry	.	.	.	.	.	.	31 83
Sundries	.	.	.	.	.	.	71 21
Advertising	.	.	.	.	.	.	5 00
Amount paid to Simpson Bros.:							
Constructing artificial stone retaining walls, steps and platform	.	.	\$2,803 00				
20 cubic feet concrete, at 36 cents	.		7 20				
10 square feet surfacing, at 10 cents	.		1 00				
				—			2,811 20
							—
							\$8,419 18
							—

Saratoga street, filling solid old bridge.							
Work done by the Bridge Division						\$2,022 20	

Sydney street, Ward 20, reconstructing.							
Labor	.	.	.	.	.	.	\$200 10
Teaming	.	.	.	.	.	.	188 00
Paving	.	.	.	.	.	.	38 30
Advertising	.	.	.	.	.	.	10 00
							—
							\$436 40
							—

**Talbot avenue**, Dorchester avenue to Washington street.

Labor . . . . .		\$638 94
Teaming . . . . .		518 24
Gravel . . . . .		191 40
Paving . . . . .		53 30
Blocks . . . . .		64 85
Stone . . . . .		307 55
Steam roller . . . . .		40 00
Building wall . . . . .		250 00
		<hr/>
		\$2,064 28
Work done by the Sewer Division . . . . .		107 34
		<hr/>
		\$2,171 62
		<hr/>

**Tremont street**, between Lenox street and Roxbury crossing, paving. (Work unfinished.)

Labor . . . . .		\$2,009 95
Teaming . . . . .		2,194 00
Gravel . . . . .		873 25
Sand . . . . .		305 25
67,164 large granite blocks . . . . .		3,239 99
15,000 paving bricks . . . . .		146 25
150 feet flagging . . . . .		87 00
Advertising . . . . .		5 40
		Amount paid to Jones & Meehan :
1,753 square yards block paving, at 25 cents . . . . .		\$438 25
806 feet edgstone set, at 8 cents . . . . .		64 48
683 square yards brick paving, at 18 cents . . . . .		122 94
58 square yards flagging crossings, at 25 cents . . . . .		14 50
		<hr/>
		640 17
		<hr/>
		\$9,501 26
		<hr/>

**Wall street**, between Causeway and Minot streets, paved with large granite blocks on a gravel base with pitch joints, edge-stone reset, brick sidewalks relaid, flagging crossings relaid. Length, 653 feet; area 1,488 square yards.

Labor . . . . .		\$1,149 80
Teaming . . . . .		843 50
Gravel . . . . .		286 41
Sand . . . . .		85 50
233.8 feet flagging . . . . .		134 94
		<hr/>
Carried forward . . . . .		\$2,500 15

<i>Brought forward</i>	.	.	.	.	.	\$2,500	15
27,365 large granite blocks	.	.	.	.	.	1,320	08
15,000 paving bricks	.	.	.	.	.	142	50
Advertising	.	.	.	.	.	8	00
Masonry	.	.	.	.	.	51	50

Amount paid to Dennis J. Kiley & Co.:							
1,255 feet edgestone set, at 8 cents	.	.	\$100	40			
532 square yards brick paving, at 18 cents	.	.	95	76			
90.7 square yards round paving, at 25 cents	.	.	22	67			
1,488 square yards block paving pitch joints, at 90 cents	.	.	1,339	20			
					1,558	03	
						5,580	26
Amount of appropriation for Wall street, \$5,000	00						
Amount paid out of Street Improvements, Ward 8	.	.	580	26			
					\$5,580	26	

## STREET IMPROVEMENTS — OLD WARDS.

## STREET IMPROVEMENTS, WARDS 1 AND 2.

**Bennington street** (uncompleted work from 1895).

Labor	.	.	.	.	.	\$250	00
<hr/>							

**Bremen street**, between Maverick and Sumner streets, paved with large granite blocks, brick sidewalks laid, edgestone reset. Length, 500 feet; area, 2,053 square yards.

Labor	.	.	.	.	.	\$1,281	10
Teaming	.	.	.	.	.	547	00
Gravel	.	.	.	.	.	748	99
43,850 large paving blocks	.	.	.	.	.	2,115	32
12,000 paving bricks	.	.	.	.	.	114	00
Wharfage	.	.	.	.	.	97	40
Advertising	.	.	.	.	.	14	75

## Amount paid to Charles L. Ward:

494.6 feet edgestone set	.	.	\$39	57
2,053 square yards block paving	.	.	513	25
485.8 square yards brick paving	.	.	87	44
				640
				26

\$5,558 82

**Saratoga street**, between Meridian and Chelsea streets, macadamized, gutters paved, crossings relaid, brick sidewalks repaved. Length, 3,425; area, 11,417 square yards.

Labor . . . . .	\$4,204	40
Teaming . . . . .	4,285	00
Gravel . . . . .	2,298	13
Filling . . . . .	208	95
Sand . . . . .	1,120	65
Stone . . . . .	8,507	85
9,195 large paving blocks . . . . .	491	53
108,800 paving bricks . . . . .	1,033	75
2,260 feet flagging . . . . .	1,363	41
Advertising . . . . .	28	65
Steam roller . . . . .	343	33

Amount paid to Ward & Conlin :

4,161.5 feet edgestone set . . . . .	\$624	23
479.9 square yards block paving . . . . .	167	97
1,390 square yards round paving . . . . .	486	50
618.9 square yards excavation . . . . .	61	89
4,815.6 square yards brick paving laid . . . . .	1,107	59
		2,448 18

Amount paid to P. J. Attridge :

2,715 feet edgestone set . . . . .	\$407	25
268.1 square yards crossings laid . . . . .	93	84
889.4 square yards round stone paving . . . . .	311	29
285.3 square yards excavation . . . . .	28	53
2,956.8 square yards brick paving laid . . . . .	680	06
		1,520 97
		-----
		\$27,854 80

Amount paid out of Street Improvements, Wards 1 and 2 . . . . . \$9,589 52

Amount paid out of Street Improvements, Ward 1 . . . . . 18,265 28

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\$27,854 80

**Sumner street**, repaired.

Labor . . . . .	\$274	58
Teaming . . . . .	19	50
Gravel . . . . .	69	45
Advertising . . . . .	6	60
		-----
		\$370 13

**Walley street**, repaired.

Gravel . . . . .	\$45	82
Teaming . . . . .	65	00
		-----
		\$110 82

Work done by the Bridge Division . . . . . \$417 66

## STREET IMPROVEMENTS, WARD 3.

**Corey street**, repaired.

Gravel . . . . .	\$33 82
Teaming . . . . .	35 00
	<u>      </u>
	<u>\$68 82</u>

**Decatur street**, Bunker Hill street to Medford street, macadamized, gutters paved, edgestone reset, brick sidewalks relaid, new and old crosswalks laid. Length, 1,185 feet; area, 3,423 square yards.

Labor . . . . .	\$2,109 10
Teaming . . . . .	639 00
Gravel . . . . .	702 38
Stone . . . . .	871 76
28,500 paving brick . . . . .	270 75
804 feet flagging . . . . .	583 35
Crossing blocks . . . . .	58 50
Advertising . . . . .	10 00
Sundries . . . . .	5 57

Amount paid to P. Brennan &amp; Co.:

2,997 feet edgestone set . . . . .	\$239 76
1,399 square yards block paving . . . . .	349 75
1,888 square yards brick paving . . . . .	339 84
	<u>      </u>
	<u>929 35</u>
	<u>      </u>
	<u>\$6,179 76</u>

Amount paid out of Street Improvements, Ward 3 (old) . . . . . \$5,804 00

Amount paid out of Street Improvements, Ward 3 (new) . . . . .	375 76
	<u>      </u>
	<u>\$6,179 76</u>

**Prospect street**, between Chelsea and Tremont streets, macadamized, gutters paved, edgestone set, brick sidewalks relaid, new and old crosswalks laid. Length, 692 feet; area, 1,999 square yards.

Labor . . . . .	\$1,085 60
Teaming . . . . .	502 00
Gravel . . . . .	472 29
Stone . . . . .	624 77
125.2 feet flagging . . . . .	72 62
Advertising . . . . .	5 00
15,000 paving brick . . . . .	142 50

*Carried forward* . . . . . \$2,904 78

<i>Brought forward . . . . .</i>	\$2,904 78
<i>Amount paid to P. Brennan &amp; Co.:</i>	
1,916 $\frac{1}{2}$ feet edgestone set . . . . .	\$174 22
746 square yards block paving . . . . .	204 20
1,231 square yards brick paving . . . . .	227 73
	606 15
	<u>\$3,510 93</u>

<i>Amount paid out of Street Improvements, Ward 3 (old) . . . . .</i>	\$2,331 47
<i>Amount paid out of Street Improvements, Ward 3 (new) . . . . .</i>	1,179 46
	<u>\$3,510 93</u>

<b>Tremont street</b> , between Monument square and Chelsea street, macadamized, gutters paved, edgestone set, brick sidewalks relaid, new and old crossings laid. Length, 1,021 feet; area, 2,668 square yards.	
Labor . . . . .	\$1,257 50
Teaming . . . . .	609 50
Gravel . . . . .	615 88
Stone . . . . .	933 23
300 feet flagging . . . . .	174 00
17,500 paving brick . . . . .	166 25
Sundries . . . . .	32 35

<i>Amount paid to Dennis Haley &amp; Co.:</i>	
2,111.3 feet edgestone set . . . . .	\$168 90
919 square yards block paving . . . . .	229 75
1,298 square yards brick paving . . . . .	233 64
	632 29
	<u>\$4,421 00</u>

<i>Amount paid out of Street Improvements, Ward 3 (old) . . . . .</i>	\$4,187 28
<i>Amount paid out of Street Improvements, Ward 3 (new) . . . . .</i>	233 72
	<u>\$4,421 00</u>

<i>Work done by the Sewer Division . . . . .</i>	\$615 24
	<u></u>

#### STREET IMPROVEMENTS, WARD 4.

<b>Essex street</b> , between Main street and Rutherford avenue, macadamized (in part), gutters paved, edgestone set, brick sidewalks relaid, crossings relaid. Length, 794 feet; area, 2,661 square yards.	
Labor . . . . .	\$404 80
Teaming . . . . .	80 50

<i>Carried forward . . . . .</i>	\$485 30
	<u></u>

<i>Brought forward</i>	.	.	.	.	.	\$485 30
Gravel	.	.	.	.	.	207 01
2,500 paving brick	.	.	.	.	.	23 75
Amount paid to John Turner & Co.:						
1,009.2 feet edgestone set	.	.	.	.	\$80 73	
430 square yards block paving	.	.	.	.	107 50	
688 square yards brick paving	.	.	.	.	123 84	
					312 07	
						\$1,028 13
Amount paid out of Street Improve- ments, Ward 4 (old)	.	.	.	.	\$556 33	
Amount paid out of Street Improve- ments, Ward 4 (new)	.	.	.	.	471 80	
					\$1,028 13	

**Medford street**, between Pearl and Quiney streets, repaved (in part), edgestone set, brick sidewalks relaid, crossings re-laid. Length, 1,591 feet; area, 7,071 square yards.

Labor	.	.	.	.	.	\$613 43
Teaming	.	.	.	.	.	75 00
Gravel	.	.	.	.	.	217 98
16,000 paving brick	.	.	.	.	.	152 00
Amount paid to P. Brennan & Co.:						
1,230.6 feet edgestone set	.	.	.	.	\$134 78	
841 square yards block paving	.	.	.	.	232 85	
1,239.4 square yards brick paving	.	.	.	.	248 34	
Masonry	.	.	.	.	41 00	
					656 97	
						\$1,715 38
Amount paid out of Street Improve- ments, Ward 4 (old)	.	.	.	.	\$1,086 83	
Amount paid out of Street Improve- ments, Ward 4 (new)	.	.	.	.	628 55	
					\$1,715 38	

#### STREET IMPROVEMENTS, WARD 5.

**Main street**, between City square and Miller street, paved with large granite blocks, edgestone set and reset, new brick sidewalks laid, new crossings laid. Length, 1,900 feet; area, 8,440 square yards.

Labor	.	.	.	.	.	\$4,217 40
Teaming	.	.	.	.	.	1,418 00
Gravel	.	.	.	.	.	1,946 25
2,180 feet edgestone	.	.	.	.	.	1,536 59
<i>Carried forward</i>	.	.	.	.	.	\$9,118 24

<i>Brought forward . . . . .</i>	\$9,118 24
190,507 large paving blocks . . . . .	10,233 93
75,000 paving brick . . . . .	712 50
1,601 feet flagging . . . . .	928 58
Sand . . . . .	119 00
Masonry . . . . .	120 76
Sundries . . . . .	19 19
Amount paid to John Turner & Co.:	
4,309.7 feet edgestone set . . . . .	\$391 49
11,901 square yards block paving . . . . .	3,041 00
64.2 square yards round paving . . . . .	16 05
3,750.1 square yards brick paving . . . . .	680 52
153 feet track lowered . . . . .	137 70
	_____
	\$4,266 76
Credit by 164,182 second hand blocks, 1,641 82	_____
	2,624 94
	_____
	\$23,877 14
Amount paid out of Street Improve- ments, Ward 5 (old) . . . . .	\$4,754 35
Amount paid out of Street Improve- ments, Ward 5 (new) . . . . .	19,122 79
	_____
	\$23,877 14

**Washington street, repaired.**

Labor . . . . .	\$232 30
Teaming . . . . .	63 00
Gravel . . . . .	69 20
Advertising . . . . .	7 00
	_____
	\$371 50

**STREET IMPROVEMENTS, WARDS 9 AND 10.**

**Chestnut street**, between Charles street and Charles river, paved with large granite blocks, edgestone reset, flagging crossings relaid, brick sidewalks relaid. Length, 818 feet; area, 2,725 square yards.

Labor . . . . .	\$1,320 50
Teaming . . . . .	1,433 00
Gravel . . . . .	360 00
Sand . . . . .	101 40
40 small corners . . . . .	134 00
192.5 feet edgestone . . . . .	119 35
405 feet flagging . . . . .	240 70

*Carried forward . . . . .* \$3,708 95

<i>Brought forward</i>	.	.	.	.	.	\$3,708 95
54,061 large paving blocks	.	.	.	.	.	2,607 90
15,000 paving brick	.	.	.	.	.	142 50
Lumber	.	.	.	.	.	7 96
Masonry	.	.	.	.	.	101 50
Advertising	.	.	.	.	.	15 45
Amount paid to James Grant & Co.:						
1,507 feet edgestone set	.	.	.	\$120 56		
2,688 square yards block paving laid	.	.	.	672 00		
716 square yards brick paving laid	.	.	.	128 88		
7.8 square yards brick paving herring bone on edge	.	.	.	3 35		
					—	924 79
						—
						\$7,509 05
Amount paid out of Street Improve- ments, Wards 9 and 10	.	.	.	\$5,257 29		
Amount paid out of Street Improve- ments, Ward 11	.	.	.	2,251 76		
					—	—
						\$7,509 05

**Parkman street**, between North Grove and North Russell streets, resurfaced.

Labor	.	.	.	.	.	.	.	\$269 10
Stone	.	.	.	.	.	.	.	264 25
Gravel	.	.	.	.	.	.	.	59 60
								—
								\$592 95

#### STREET IMPROVEMENTS, WARD 12.

**Beach street**, between Harrison avenue and Washington streets, paved with large granite blocks on a concrete base with pitch joints, edgestone reset, sidewalks relaid. Length, 483 feet; area, 1,878 square yards.

Labor	.	.	.	.	.	.	.	\$378 75
Teaming	.	.	.	.	.	.	.	1,295 00
Gravel	.	.	.	.	.	.	.	215 43
74 feet edgestone	.	.	.	.	.	.	.	45 88
216 feet flagging	.	.	.	.	.	.	.	128 27
52,946 large granite blocks	.	.	.	.	.	.	.	2,537 01
20,000 paving brick	.	.	.	.	.	.	.	195 00
Templets	.	.	.	.	.	.	.	12 20
Masonry	.	.	.	.	.	.	.	98 00
Cement	.	.	.	.	.	.	.	11 00

Amount paid to J. B. O'Rourke:  
1,302 square yards paving barred up and  
roadway excavated . . . . . \$325 50

*Carried forward* . . . . . \$325 50 \$4,916 54

<i>Brought forward . . . . .</i>	\$325 50	\$4,910 54
295 cubic yards American cement concrete base . . . . .	1,475 00	
1,852.6 square yards granite block paving, pitch joints . . . . .	1,667 34	
595 feet edgestone reset . . . . .	89 25	
431 square yards brick paving relaid . . . . .	99 13	
18 square yards block paving gravel joints . . . . .	4 50	
Extra work, as ordered . . . . .	21 56	
	_____	
		3,682 28
	_____	
		\$8,598 82
Amount paid out of Street Improvements, Ward 12 (old) . . . . .	\$6,113 44	
Amount paid out of Street Improvements, Ward 7 (new) . . . . .	2,485 38	
	_____	
		\$8,598 82

**Chauncy street.**, between Summer and Essex streets, paved with large granite blocks on a concrete base with pitch joints, edgestone reset, sidewalks relaid. Length, .872 feet; area, 2,825 square yards.

Labor . . . . .	\$792 09
Teaming . . . . .	1,442 50
Gravel . . . . .	210 82
57,652 large granite blocks . . . . .	2,781 13
71.5 feet edgestone . . . . .	48 07
8,200 paving brick . . . . .	79 95
377 feet flagging . . . . .	219 78
Templets . . . . .	4 40
Masonry . . . . .	84 00
Advertising . . . . .	31 14
Lumber . . . . .	15 81
Cement . . . . .	11 00

Amount paid to Metropolitan Construction Co.:	
2,050 square yards pavement barred up and roadway excavated . . . . .	\$512 50
428.4 cubic yards American cement concrete base . . . . .	2,142 00
2,570.2 square yards granite block paving, pitch joints . . . . .	2,313 18
223 feet edgestone reset . . . . .	33 45
147 square yards brick sidewalks relaid, . . . . .	33 81
87 square yards granite block paving, gravel joints . . . . .	21 75
	_____
	5,056 69

*Carried forward . . . . .*

\$10,777 38

<i>Brought forward</i>	. . . . .	\$10,777 38
Amount paid out of Street Improvements, Ward 12 (old)	. . . . .	\$8,208 09
Amount paid out of Street Improvements, Ward 6 (new)	. . . . .	474 49
Amount paid out of Street Improvements, Ward 7 (new)	. . . . .	2,094 80
	—————	—————
		\$10,777 38

**Essex street, repaired.**

11,696 large paving blocks	. . . . .	\$564 21
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**Harvard street**, between Hudson street and Harrison avenue, paved with large blocks; and between Harrison avenue and Washington street, paved with small blocks, edgestone reset, sidewalks relaid. Length, 751 feet; area, 1,416 square yards.

Labor	. . . . .	\$1,478 12
Teaming	. . . . .	1,021 00
Gravel	. . . . .	262 26
436.1 feet flagging	. . . . .	257 36
28.1 feet circular edgestone	. . . . .	36 51
12,200 paving brick	. . . . .	122 00
14,500 granite paving blocks	. . . . .	699 48
Masonry	. . . . .	357 00
	—————	—————
		\$4,233 73

**Pine street**, between Washington street and Harrison avenue, asphalted, edgestone reset and sidewalks relaid. Length, 419 feet; area, 570 square yards.

Labor	. . . . .	\$626 95
Teaming	. . . . .	578 00
Gravel	. . . . .	54 70
225 small blocks	. . . . .	9 23
6,400 paving brick	. . . . .	64 00
335 feet edgestone	. . . . .	207 70
57 feet flagging	. . . . .	33 18
Masonry	. . . . .	147 00
Templets	. . . . .	15 60
Advertising	. . . . .	23 63

Amount paid to Barber Asphalt Paving Co.: 567.5 square yards Trinidad lake asphalt with binder and cement concrete base, at \$3 . . . . .

1,702 50

Amount retained from Barber Asphalt Paving Co.,

\$3,462 49

85 13

*Carried forward* . . . . .

\$3,377 36

<i>Brought forward . . . . .</i>	\$3,377 36
Amount paid out of Street Improve- ments, Ward 12 . . . . .	\$3,327 15
Amount paid out of Street Improve- ments, Ward 7 . . . . .	50 21
	<hr/>
	\$3,377 36

**Whitmore street.** Amount retained from Boston Asphalt Co. for work done under contract in 1895 . . . . . 62 70

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**Street Improvements Ward 13.** A street, repaved.

Labor . . . . .	\$108 10
Teaming . . . . .	18 00
Paving . . . . .	140 50
Advertising . . . . .	26 65
	<hr/>
	293 25

**C street, between First and Third streets,** macadamized, gutters paved. Length, 506 feet; area, 1912 square yards.

Labor . . . . .	372 60
Teaming . . . . .	314 50
Gravel . . . . .	47 93
Stone . . . . .	455 43
Advertising . . . . .	26 23
	<hr/>
	\$1,216 69

**D street, between First and Third streets,** paved with large granite blocks, edgestone set and reset, brick sidewalks laid, flagging crossings laid and relaid. Length, 506 feet; area, 1,912 square yards.

Labor . . . . .	\$1,864 91
Teaming . . . . .	864 00
Gravel . . . . .	560 75
510 feet flagging . . . . .	319 06
39,229 large granite blocks . . . . .	1,892 41
Wharfage on blocks . . . . .	103 20
10,000 paving brick . . . . .	97 50
354 3-12 feet edgestone and 2 small corners . . . . .	226 33
Advertising . . . . .	40 48

Amount paid to H. Gore & Co.:	
2,091.5 square yards block paving . . . . .	\$522 88
1,017.6 feet edgestone set . . . . .	81 41
561.6 square yards brick paving . . . . .	101 09
138.3 square yards flagging crossings . . . . .	34 58
	<hr/>
	739 96

*Carried forward . . . . .* \$6,708 60

<i>Brought forward</i>	.	.	.	\$6,708 60
Amount paid out of Street Improvements, Ward 13 (old)	.	.	\$5,436 93	
Amount paid out of Street Improvements, Ward 13 (new)	.	.	1,271 67	<u>\$6,708 60</u>

**Dorchester avenue, between First street and N. Y., N. H. & H. R. R. crossing,** paved with large granite blocks, edgestone reset, brick sidewalks relaid, flagging crossings laid and relaid. Length 2,125 feet; area, 9,445 square yards.

Labor	.	.	.	\$4,993 05
Teaming	.	.	.	3,470 50
Gravel and sand	.	.	.	1,446 87
902 feet flagging	.	.	.	523 16
63,000 paving brick	.	.	.	614 25
148,062 large paving blocks	.	.	.	7,142 50
Wharfage	.	.	.	674 75
Advertising	.	.	.	36 50
Amount paid to H. Gore & Co.:				
6,716.4 square yards block paving	.	\$1,679 10		
3,267 feet edgestone, set	.	261 36		
2,977.7 square yards brick paving	.	535 99		
463.3 square yards flagging laid	.	115 83		
36.9 square yards block paving laid	.	9 23		
25.2 square yards brick paving herring bone	.	9 07		
			2,610 58	
				<u>\$21,512 16</u>

Amount paid out of Street Improvements, Ward 13 (old)	.	\$11,605 10
Amount paid out of Street Improvements, Ward 13 (new).	.	9,907 06

\$21,512 16

**Dove street, between E and Dorchester streets,** macadamized, gutters repaved, edgestones reset, brick sidewalks relaid. Length, 1,255 feet; area, 1,841 square yards.

Labor	.	.	.	\$1,202 90
Teaming	.	.	.	389 50
Gravel	.	.	.	87 20
Stone	.	.	.	332 61
10,000 paving brick	.	.	.	97 50
Amount paid to H. Gore & Co.:				
2,522.1 feet edgestone set	.	\$201 77		
64.1 square yards block paving	.	16 03		
573.7 square yards round paving	.	143 43		
612.2 square yards brick paving	.	110 20		
			471 43	

*Carried forward* . . . . . \$2,581 14

<i>Brought forward</i>	. . . . .	\$2,581 14
Amount paid out of Street Improvements, Ward 13 (old)	. . . . .	\$2,144 38
Amount paid out of Street Improvements, Ward 14	. . . . .	436 76
		<u>2,581 14</u>
Work done by the Sewer Division	. . . . .	<u>\$241 60</u>

## STREET IMPROVEMENTS, WARDS 14 AND 15.

**Bellflower street**, between Dorchester avenue and Boston street, macadamized, edgestone set, gutters paved, crossings laid, brick sidewalks laid. Length, 691 feet; area, 1,996 square yards.

Labor	. . . . .	\$1,337 91
Teaming	. . . . .	413 00
Filling	. . . . .	1,064 35
Stone	. . . . .	553 02
1,318.3 feet edgestone	. . . . .	817 35
102.2 feet flagging	. . . . .	59 27
Paving	. . . . .	238 48
Advertising	. . . . .	29 63
Amount paid to John McMorrow :		
Building retaining walls as per agreement	. . . . .	519 00
		<u>\$5,032 01</u>

Amount paid out of Street Improve- ments, Wards 14 and 15	. . . . .	\$4,135 62
Amount paid out of Street Improve- ments, Ward 15 (old)	. . . . .	891 39
Amount paid out of Street Improve- ments, Ward 16 (new)	. . . . .	5 00

\$5,032 01

**East Eighth street**, between Old Harbor and Mercer streets, paved between the tracks with large granite blocks. Length, 500 feet; area, 778 square yards.

Labor	. . . . .	\$274 54
Teaming	. . . . .	132 50
12,420 large paving blocks	. . . . .	599 14
1,500 paving brick	. . . . .	14 78
Advertising	. . . . .	31 50

Amount paid to H. Gore & Co.:		
704 square yards block paving	. . . . .	\$176 00
440 square yards paving barred out, dug out, laid, and gravel furnished	. . . . .	308 00
		<u>484 00</u>

*Carried forward* . . . . . \$1,536 46

<i>Brought forward . . . . .</i>	\$1,536 46
Amount paid out of Street Improvements, Wards 14 and 15 . . . . .	\$1,228 46
Amount paid out of Street Improvements, Ward 15 (new) . . . . .	308 00
	—————
	<u>\$1,536 46</u>

**East Sixth street**, between L and N streets, paved with large granite blocks, edgestone set and reset, brick sidewalks laid and relaid, crossings laid and relaid. Length, 1,141 feet; area, 4,310 square yards.

Labor . . . . .	\$2,019 60
Teaming . . . . .	866 00
Gravel . . . . .	400 58
300 feet flagging . . . . .	174 00
10,500 paving brick . . . . .	102 38
Lime . . . . .	90
Crossing blocks . . . . .	231 50
255 feet edgestone . . . . .	158 10
69,225 large paving blocks . . . . .	3,339 42
Wharfage . . . . .	217 60
Advertising . . . . .	8 25
Sundries . . . . .	6 60

Amount paid to H. Gore & Co.:	
2,709 square yards block paving . . . . .	\$677 25
2,081 feet edgestone set . . . . .	166 48
1,277 square yards brick paving . . . . .	229 86
24 square yards flagging laid . . . . .	6 00
534 square yards paving barred out, dug out, teamed, laid and gravel furnished . . . . .	480 60
	—————
	1,560 19
	—————
	<u>\$9,085 12</u>

Amount paid out of Street Improvements, Wards 14 and 15 . . . . .	\$8,785 17
Amount paid out of Street Improvements, Ward 14 (new) . . . . .	299 95
	—————
	<u>\$9,085 12</u>

**K street**, between East Sixth and East Eighth street, asphalted, paved between tracks with large granite blocks, edgestone set, brick sidewalks laid, flagging crossings laid. Length, 567 feet; area, 1,083 square yards.

Labor . . . . .	\$1,449 75
Teaming . . . . .	488 00
280 feet flagging . . . . .	162 40
14,500 paving brick . . . . .	141 38
	—————
<i>Carried forward . . . . .</i>	\$2,241 53

<i>Brought forward</i>	.	.	.	.	.	\$2,241 53
13,890 large granite blocks	.	.	.	.	.	670 04
Stone	.	.	.	.	.	465 16
Advertising	.	.	.	.	.	6 00
Sundries	.	.	.	.	.	4 96

Amount paid to H. Gore & Co.:						
286 square yards paving barred out, dug						
out, teamed, laid and gravel furnished,	\$257 40					
356 square yards block paving	.	.	89 00			
1,133 feet edgestone set	.	.	90 64			
976 square yards brick paving	.	.	175 68			
103 square yards flagging crossings	.	.	25 75			
						638 47

Amount paid to Boston Asphalt Co.:						
1,082.7 square yards Sicilian rock asphalt with concrete base	.	.	.	.	.	3,248 10
						_____
						\$7,274 26
Amount retained from Boston Asphalt Co.	.	.	.	.	.	162 40
						_____
						\$7,111 86

Amount paid out of Street Improvements, Wards 14 and 15	.	.	\$3,868 86		
Amount paid out of Street Improvements, Ward 14 (new)	.	.	1,700 15		
Amount paid out of Street Improvements, Ward 15 (new)	.	.	1,542 85		
			_____		
				\$7,111 86	
				_____	

**Rawson street**, between Dorchester avenue and Boston street, macadamized, edgestone set, gutters paved. Length, 475 feet; area, 1,372 square yards.

Labor	.	.	.	.	.	.	.	\$688 10
Teaming	.	.	.	.	.	.	.	360 54
Gravel	.	.	.	.	.	.	.	191 78
Stone	.	.	.	.	.	.	.	558 79
893 $\frac{1}{2}$ feet edgestone and 6 small corners	.	.	.	.	.	.	.	573 86
15,000 gutter blocks	.	.	.	.	.	.	.	300 00
Paving	.	.	.	.	.	.	.	156 60
								_____
								\$2,829 67

Amount paid out of Street Improvements, Wards 14 and 15	.	.	\$1,065 73		
Amount paid out of Street Improvements, Ward 16 (new)	.	.	1,763 94		
			_____		
				\$2,829 67	
				_____	

**Swett street**, Massachusetts avenue to railroad bridge, macadamized, plank and gravel sidewalks laid. Length, 2,224 feet; area, 9,884 square yards.

Labor . . . . .	\$724 50
Teaming . . . . .	1,963 00
Gravel . . . . .	991 37
Stone . . . . .	5,136 02
Steam roller . . . . .	340 00
Masonry . . . . .	24 00
	<hr/>
	\$9,178 89

Amount paid out of Street Improvements, Wards 14 and 15 . . . . . \$2,749 21

Amount paid out of Street Improvements, Ward 20 (old) . . . . .	6,429 68
	<hr/>
	\$9,178 89

**Vale street**, between Burnham street and water front, macadamized. Length, 400 feet; area, 1,155 square yards.

Teaming . . . . .	\$10 00
Gravel . . . . .	31 00
Stone . . . . .	136 50
	<hr/>
	\$177 50

Work done by the Sewer Division . . . . . \$5,310 32

#### STREET IMPROVEMENTS, WARD 16.

**Compton street**, Shawmut avenue to Washington street, sidewalks relaid, gutters paved.

Labor . . . . .	\$230 00
Teaming . . . . .	348 00
Gravel and sand . . . . .	134 19
4,875 large granite blocks . . . . .	318 83
55 feet flagging . . . . .	44 00
12,300 paving brick . . . . .	123 00
Masonry . . . . .	84 00
	<hr/>
	\$1,282 02

Amount paid out of Street Improvements, Ward 16 (old) . . . . . \$1,092 13

Amount paid out of Street Improvements, Ward 9 (new) . . . . .	189 89
	<hr/>
	\$1,282 02

## STREET IMPROVEMENTS, WARDS 17 AND 18.

**Albany street**, between Concord street and Massachusetts avenue, repaved, edgestone reset, gravel walks laid. Length, 690 feet; area, 4,140 square yards.

Labor . . . . .	\$319 00
Teaming . . . . .	12 00
Gravel . . . . .	86 62
400 second quality blocks . . . . .	12 00
300 paving brick . . . . .	3 00
Masonry . . . . .	63 00

Amount paid to Doherty & Connors:

2,300 square yards block paving laid . . .	\$805 00
393 feet edgestone set . . . . .	31 44
130 square yards brick paving laid . . . . .	23 40
49 square yards flagging crossings . . . . .	17 15
	— — —
Amount paid to Barber Asphalt Paving Co., 450.35 square yards Trinidad asphalt . . . . .	876 99
	— — —
Amount paid to Barber Asphalt Paving Co., 450.35 square yards Trinidad asphalt . . . . .	1,125 87
	— — —
	\$2,498 48

Amount paid out of Street Improvements, Wards 17 and 18 . . . . . \$1,085 49

Amount paid out of Street Improvements, Wards 17 and 18 . . . . .	1,412 99
	— — —
	\$2,498 48

**East Lenox street**, new sidewalks.

Labor . . . . .	\$207 15
Teaming . . . . .	48 16
Gravel . . . . .	37 21
550 large granite blocks . . . . .	30 25
675 paving brick . . . . .	6 75
	— — —
	\$329 52

**Fabin street**.

Amount retained from Boston Asphalt Co., for work done under contract in 1895 . . . . .	\$92 27
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**Fellows street**, macadamized. Length, 1,061 feet; area, 3,065 square yards.

Labor . . . . .	\$175 38
Teaming . . . . .	541 00
Stone . . . . .	2,451 95
Advertising . . . . .	7 50

*Carried forward* . . . . . \$3,175 83

<i>Brought forward</i>	.	.	.	.	\$3,175	83
Amount paid out of Street Improvements, Wards 17 and 18	.	.	.	.	\$862	13
Amount paid out of Street Improvements, Ward 12 (new)	.	.	.	.	1,713	20
Amount paid out of Street Improvements, Ward 17 (new)	.	.	.	.	493	50
Amount paid out of Paving Division	.	.	.	.	107	00
						<u>\$3,175 83</u>

**Flagg street.** between Washington and Reed streets, macadamized, edgestone reset, sidewalks relaid.

Labor	.	.	.	.	.	.	\$457	22
Teaming	.	.	.	.	.	.	762	96
Gravel	.	.	.	.	.	.	82	05
Stone	.	.	.	.	.	.	348	62
100 feet edgestone and two small corners	.	.	.	.	.	.	68	70
5,000 paving brick	.	.	.	.	.	.	47	50
Masonry	.	.	.	.	.	.	168	00
Advertising	.	.	.	.	.	.	10	75
							<u>\$1,945</u>	<u>80</u>

Amount paid out of Street Improvements, Wards 17 and 18	.	.	\$1,653	75
Amount paid out of Street Improvements, Ward 12	.	.	.	292 05
				<u>\$1,945 80</u>

**Harrison avenue.**

Amount retained from Barber Asphalt Paving Co., for work done under contract in 1895	.	\$245	39
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<b>Pembroke street</b> (unfinished work from 1895).				
Labor	.	.	.	.
Teaming	.	.	.	.
Gravel	.	.	.	.
				<u>\$693 24</u>

Amount paid out of Street Improvements, Wards 17 and 18	.	\$665	64
Amount paid out of Street Improvements, Ward 12 (new)	.	.	27 60

\$693 24**West Canton street** (unfinished work from 1895).

Masonry	.	.	.	\$119	00
Teaming	.	.	.	12	00
				<u>\$131</u>	<u>00</u>

## STREET IMPROVEMENTS, WARDS 19 AND 22.

**Bay State road.**

Gravel . . . . .	\$187 55
Teaming . . . . .	54 00
	<hr/>
	\$241 55

**Beacon street,** Massachusetts avenue to Commonwealth avenue, macadamized, gutters paved, edgestone reset, crossings laid and relaid, sidewalks relaid. Length, 1,750 feet; area, 8,944 square yards.

Labor . . . . .	\$256 43
Teaming . . . . .	1,653 50
Gravel and sand . . . . .	710 05
Stone . . . . .	2,726 59
Steam roller . . . . .	150 00
11,500 paving brick . . . . .	112 50
200.3 feet flagging . . . . .	116 17
Advertising . . . . .	26 70

Amount paid to James Grant & Co. :	
2,600 feet edgestone set . . . . .	\$390 00
1,496 square yards block paving laid . . . . .	523 60
989 square yards brick paving laid . . . . .	227 47
123 square yards brick paving laid, herring bone . . . . .	50 43
4.8 square yards brick paving laid, herring bone, on edge . . . . .	2 64
	<hr/>
	1,194 14
	<hr/>
	\$6,946 08

Amount paid out of Street Improvements, Wards 19 and 22 . . . . .	\$4,596 99
Amount paid out of Street Improvements, Ward 11 (new) . . . . .	412 21
Amount paid out of Paving Division . . . . .	1,936 88
	<hr/>
	\$6,946 08

<b>Boylston street</b> (unfinished work from 1895).	
Gravel . . . . .	\$86 80
	<hr/>

<b>Calumet street</b> (unfinished work from 1895).	
Stone . . . . .	\$360 00
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<b>Lawn street</b> (unfinished work from 1895).	
Gravel . . . . .	\$265 60
Stone . . . . .	60 00
	<hr/>
	\$325 60

**Marlborough street**, between Massachusetts avenue and Park-way, macadamized, edgestone reset, gutters repaved, sidewalks relaid. Length, 647 feet; area, 2,444 square yards.

Labor . . . . .		\$66 70
Teaming . . . . .		731 42
Gravel . . . . .		286 08
Stone . . . . .		992 32
Steam roller . . . . .		60 00
200 feet flagging . . . . .		116 00

Amount paid to James Grant & Co.:

827 feet edgestone set . . . . .	\$124 05
443 square yards block paving . . . . .	155 05
447 square yards brick paving . . . . .	102 81
	381 91
	<u>\$2,634 43</u>

**Parker street** (unfinished work from 1895).

Gravel . . . . .	\$55 80
	<u>\$55 80</u>

**Roxbury street**, between Washington street and Shawmut avenue, repaved with large granite blocks; between Shawmut avenue and Cabot street, macadamized, gutters repaved, brick sidewalks relaid, crossings relaid. Length, paved 350 feet; area, 1,633 square yards. Length, macadamized 2,651 feet; area, 13,685 square yards.

Labor . . . . .	\$2,517 25
Teaming . . . . .	3,765 50
Gravel and sand . . . . .	2,298 75
Stone . . . . .	2,445 48
Steam roller . . . . .	40 00
301.3 feet flagging . . . . .	174 76
18,650 paving brick . . . . .	201 05
51 feet edgestone and two small corners . . . . .	51 72
20,000 large granite blocks . . . . .	964 80
Masonry . . . . .	29 20

Amount paid to Austin Ford & Son:

3,303 feet edgestone set . . . . .	\$264 24
2,917 square yards block paving . . . . .	729 25
2,278 square yards brick paving . . . . .	410 04
	1,403 53
	<u>\$13,892 04</u>

Amount paid out of Street Improvements, Wards 19 and 22 . . . . . \$6,188 28

Amount paid out of Street Improvements, Ward 18 (new) . . . . . 7,703 76

\$13,892 04

**Westland avenue** (unfinished work from 1895).

Stone . . . . .	\$1,367 77
	<u>\$1,367 77</u>

## STREET IMPROVEMENTS, WARD 20.

**Newcomb street**, macadamized, gutters repaved, edgestone reset, brick sidewalks relaid. Length, 611 feet; area, 1,289 square yards.

Labor . . . . .	\$345 95
Teaming . . . . .	545 50
Gravel . . . . .	883 95
Stone . . . . .	464 45
3,000 paving brick . . . . .	29 25
Paving . . . . .	251 97
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	\$2,521 07

Amount paid out of Street Improvements, Ward 20 (old) . . . \$1,636 82

Amount paid out of Street Improvements, Ward 17 (new) . . . 884 25

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\$2,521 07

**Quincy street** (unfinished work from 1895).

Teaming . . . . .	\$20 00
Gravel . . . . .	308 00
Stone . . . . .	717 35
Steam roller . . . . .	240 00
	<hr/>
	\$1,285 35

**Shirley street** roadway and sidewalks gravelled.

Gravel . . . . .	\$2,846 00
Filling . . . . .	390 00
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	\$3,236 00

Work done by the Sewer Division . . . . .

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\$301 51

## STREET IMPROVEMENTS, WARD 24.

**Alban street** (entire length), excavated, filled, subgraded, macadamized, sidewalks built. Length, 1,358 feet; area, 3,948 square yards.

Labor . . . . .	\$814 66
Teaming . . . . .	887 00
Gravel . . . . .	282 48
Stone . . . . .	903 24
Steam roller . . . . .	240 00
Masonry . . . . .	34 50
Artificial stone sidewalk . . . . .	30 66
Paving . . . . .	9 00
	<hr/>
	\$3,201 54

**Bicknell street** (unfinished work from 1895).

Teaming . . . . .	\$124 00
Gravel . . . . .	88 20
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	\$212 20

**Bradshaw street**, between Glenway and Bicknell streets, macadamized, gutters paved, sidewalks surfaced, two catch basins built. Length, 450 feet; area, 1,300 square yards.

Labor . . . . .	\$593 98
Teaming . . . . .	730 50
Gravel . . . . .	119 10
Stone . . . . .	305 00
Steam roller . . . . .	70 00
Paving . . . . .	155 50
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	\$1,974 08

**Morton street** (unfinished work from 1895).

Teaming . . . . .	\$310 00
Gravel . . . . .	8 40
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	\$318 40

Work done by the Sewer Division . . . . .	\$1,824 38
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## STREET IMPROVEMENTS, WARD 25.

**Washington street**, between Commonwealth avenue and Oak square, widened, macadamized, gutters paved, sidewalks built.

Labor . . . . .	\$209 48
Teaming . . . . .	1,148 00
Gravel . . . . .	2,356 20
Stone . . . . .	8,738 99
Steam roller . . . . .	210 00
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Amount paid to James Grant & Co.:	
5,300 feet edystone set . . . . .	\$424 00
45.1 square yards block paving . . . . .	11 28
1,787 square yards round stone paving . . . . .	446 75
	<hr/>
	882 03
	<hr/>
	\$13,544 70

Amount paid out of Street Improvements, Ward 25 (old) . . . . . \$2,119 67

Amount paid out of Street Improvements, Ward 25 (new) . . . . . 939 50

Amount paid out of Paving Division . . . . . 10,485 53

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\$13,544 70

**Western avenue**, between Western-avenue bridge and Market street, resurfaced, plank walks repaired, crossings laid and relaid. Length.

Labor . . . . .	\$384 10
Teaming . . . . .	484 00
Stone . . . . .	37 30
97.6 feet flagging . . . . .	58 56
Paving . . . . .	20 67
	<hr/>
	\$984 63

Amount paid out of Street Improvements, Ward 25 (old) . . . \$338 07

Amount paid out of Street Improvements, Ward 25 (new) . . .	646 56
	<hr/>
	\$984 63

**Winship street** (unfinished work from 1895).

Stone . . . . .	\$1,478 63
Gravel . . . . .	17 00
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	\$1,495 63

Work done by the Bridge Division . . . . .

\$455 74

## STREET IMPROVEMENTS, NEW WARDS.

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### STREET IMPROVEMENTS, WARD 1.

**Blackinton and Leyden streets**, gravelled, new edgestone and gutters built, sidewalks gravelled. Area, 728 square yards.

Labor . . . . .	\$554 30
Teaming . . . . .	159 94
Gravel . . . . .	180 29
Stone screenings . . . . .	40 80
Edgestone . . . . .	6 40
	<hr/>
	\$941 73

**Byron street**, between Pope and Bennington streets, gravelled, crossings paved. Length, 1,164 feet; area, 4,597 square yards.

Labor . . . . .	\$368 00
Teaming . . . . .	406 00
Gravel . . . . .	1,683 70
Stone screenings . . . . .	34 85
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	\$2,492 55

**Chelsea street.**

Teaming . . . . .	\$72 00
Sand . . . . .	26 82
Gravel . . . . .	44 70
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	\$143 52

**Cowper street.**

Gravel . . . . .	\$47 68
Stone screenings . . . . .	25 50
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	\$73 18

**Shelby street.**

Teaming . . . . .	\$15 50
Gravel . . . . .	17 88
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	\$33 38

**Wordsworth street**, between Bennington street and cemetery, resurfaced. Length, 350 feet; area, 1,322 square yards.

Labor . . . . .	\$98 90
Teaming . . . . .	16 00
Gravel . . . . .	298 00
Stone screenings . . . . .	147 05
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	\$559 95

Work done by the Sewer Division . . . . . \$1,653 97

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**STREET IMPROVEMENTS, WARD 2.**

**Havre street**, between Maverick and Meridian streets, macadamized, gutters repaved, edgestone reset, brick sidewalks relaid. Length, 613 feet; area, 2,316 square yards.

Labor . . . . .	\$496 80
Teaming . . . . .	477 62
Gravel . . . . .	497 66
Stone . . . . .	135 94
10,000 paving brick . . . . .	95 00

Amount paid to Ward & Conlin:

1,080.3 feet edgestone set . . . . .	\$162 05
523.9 square yards block paving . . . . .	183 37
985.7 square yards brick paving . . . . .	226 71
<hr/>	
	572 13

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\$2,275 15

**Haynes street** macadamized, gutters paved, brick sidewalks relaid, crossings relaid. Length, 642 feet; area, 1,480 square yards.

Labor . . . . .		\$916 18
Teaming . . . . .		575 63
Gravel . . . . .		391 87
Stone . . . . .		102 41
23,000 paving brick . . . . .		222 50
881 gutter blocks . . . . .		25 06
Amount paid to Ward & Conlin:		
1,303.5 feet edgestone set . . . . .		\$104 28
471.1 square yards block paving . . . . .		117 78
700.3 square yards brick paving . . . . .		126 05
	—	348 11
	—	<u>\$2,581 76</u>

**Marion and Bremen streets**, filled and resurfaced to new grade. Area 1,200 square yards.

Labor . . . . .		\$278 30
Teaming . . . . .		234 00
Gravel . . . . .		47 68
Stone . . . . .		1,346 38
	—	<u>\$1,906 36</u>

**Maverick Street**, repaired.

Labor . . . . .		\$177 10
Teaming . . . . .		237 00
	—	<u>\$414 10</u>

**Sumner Street**, between Orleans and Webster streets, macadamized, gutters repaved, edgestone reset, brick sidewalks relaid, crossings relaid. Length 2,259 feet; area 9,789 square yards.

Labor . . . . .		\$2,815 62
Teaming . . . . .		1,865 00
Gravel and sand . . . . .		1,552 42
Stone . . . . .		890 33
Steam roller . . . . .		415 00
Cement . . . . .		23 00
80,000 paving bricks . . . . .		760 00
Advertising . . . . .		17 25

Amount paid to Ward & Conlin:		
4,893.1 feet edgestones set . . . . .		\$391 45
2,032.9 square yards block paving . . . . .		508 23
3,537 square yards round stone paving . . . . .		884 25
1,800.3 square yards brick paving . . . . .		324 05
20.5 square yards hexagonal paving . . . . .		5 13
	—	<u>2,113 11</u>
	—	<u>\$10,451 73</u>

**Webster Street**, between Orleans and Sumner streets, macadamized; between Orleans street and B. & M. R.R. repaved, edgestones reset, gutters repaved, brick sidewalks relaid. Length, macadam 2,315 feet; paving 210 feet; area, macadam 7,460 square yards; paving 1,093 square yards.

Labor . . . . .		\$1,735 52
Teaming . . . . .		1,320 00
Gravel and sand . . . . .		1,740 79
Stone . . . . .		1,328 18
Steam roller . . . . .		351 66
5,220 granite blocks . . . . .		273 58
765 feet flagging . . . . .		478 70
63,750 paving bricks . . . . .		605 62
Advertising . . . . .		7 40
Amount paid to Ward & Conlin:		
5,136.1 feet edgestone set . . . . .		\$410 89
841.6 square yards block paving . . . . .		210 40
1,611.3 square yards round paving . . . . .		402 83
5,756.4 square yards brick paving . . . . .		1,036 15
Extra work as ordered . . . . .		15 50
		<hr/>
		\$9,917 22
Work done by the Bridge Division . . . . .		<hr/> \$300 00
Work done by the Sewer Division . . . . .		<hr/> \$869 67

#### STREET IMPROVEMENTS, WARD 3.

**Ferrin street** (entire length), macadamized, gutters paved, edgestones set, brick sidewalks laid, crossings laid or relaid. Length, 1,121 feet; area, 2,330 square yards.

Labor . . . . .		\$1,566 20
Teaming . . . . .		473 50
Gravel . . . . .		739 32
Stone . . . . .		955 30
19,000 paving brick . . . . .		180 50
326 feet flagging . . . . .		189 08
10.6 feet edgestone and 2 small corners . . . . .		14 55
Masonry . . . . .		9 65
Cement . . . . .		3 30
Advertising . . . . .		9 75
Lumber . . . . .		16 00
Amount paid to Healey & O'Hara:		
2,883 feet edgestone set . . . . .		\$230 64
1,033 square yards round paving . . . . .		258 25
1,313 square yards brick paving . . . . .		236 34
		<hr/>
		725 23
		<hr/> \$4,882 38

Work done by the Sewer Division . . . . .	<u>\$556 29</u>
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#### STREET IMPROVEMENTS, WARD 4.

**Alford street**, from end of block paving to Everett line, macadamized, plank walk laid, fence built. Length, 2,114 feet; area, 7,249 square yards.

Labor . . . . .	\$1,201 75
Teaming . . . . .	452 00
Gravel . . . . .	442 88
Stone . . . . .	1,036 21
Nails . . . . .	19 08
Lumber . . . . .	293 16
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	<u>\$3,445 08</u>

**Beach street** (entire length), macadamized, gutters paved, edgestone set, brick sidewalks laid, crossings relaid, gravel sidewalks built. Length, 337 feet; area, 665 square yards.

Labor . . . . .	\$147 20
Teaming . . . . .	50 50
Gravel . . . . .	29 41
	<hr/>
	<u>\$227 11</u>

**Walker street** (entire length), macadamized, gutters paved, edgestone set, brick sidewalks relaid, crossings relaid. Length, 755 feet; area, 1,526 square yards.

Labor . . . . .	\$1,016 60
Teaming . . . . .	364 50
Gravel . . . . .	522 16
Stone . . . . .	574 49
Edgestone . . . . .	18 04
82 feet flagging . . . . .	69 70
20,000 paving bricks . . . . .	190 00
Masonry . . . . .	26 01
Advertising . . . . .	28 88

Amount paid to P. Brennan & Co.:

2,285 feet edgestone set . . . . .	\$342 75
283 square yards block paving . . . . .	99 05
728 square yards round paving . . . . .	254 80
1,306 square yards brick paving . . . . .	300 38
Extra work as ordered . . . . .	134 00
	<hr/>
	<u>\$1,130 98</u>
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	<u>\$3,936 36</u>

Work done by the Sewer Division . . . . .	<u>\$2,821 71</u>
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## STREET IMPROVEMENTS, WARD 5.

**City Square**, repaved, edgestone reset. Area, 834 square yards.

238 feet edgestone set . . . . .	\$19 04
834 square yards block paving . . . . .	208 50
	<u>\$227 54</u>

**Park Square**, repaved, edgestone reset, brick sidewalks relaid, crossings laid and relaid. Area, 351 square yards.

Labor . . . . .	\$216 20
Teaming . . . . .	76 00
Gravel . . . . .	58 82
250 feet flagging . . . . .	145 00
Paving . . . . .	99 78
	<u>\$595 80</u>

**Stacey street** (entire length), paved with old granite blocks, edgestone reset, brick sidewalks relaid, gravel sidewalks built. Length, 492 feet; area, 820 square yards.

Labor . . . . .	\$894 70
Teaming . . . . .	255 00
Gravel . . . . .	266 42
Sundries . . . . .	30 00
Advertising . . . . .	5 00

Amount paid to Healey & O'Hara:

907.7 feet edgestone set . . . . .	\$72 62
925 square yards block paving . . . . .	231 25
81 square yards brick paving . . . . .	14 58
	<u>318 45</u>
	<u>\$1,769 57</u>

**Union street**, between Lynde and Washington streets, macadamized, gutters paved, edgestone set, crossings laid. Length, 84 feet; area, 215 square yards.

Labor . . . . .	\$264 50
Teaming . . . . .	68 40
Gravel . . . . .	74 39
Flagging . . . . .	68 85
Edgestone . . . . .	7 20
Paving . . . . .	60 87
	<u>\$544 21</u>

**Warren Avenue**, between City square and railroad tracks, repaved, edgestone reset, crossings laid and relaid. Length, 200 feet; area, 1,330 square yards.

Labor . . . . .	\$591 10
Teaming . . . . .	9 00
Gravel . . . . .	242 20
350 feet flagging . . . . .	203 00
	<hr/>
	\$1,045 30

**Warren street**, between Winthrop and Soley streets (unfinished work from 1895).

Teaming . . . . .	\$102 00
Amount paid to Boston Asphalt Co.:	
365.3 square yards Sicilian rock asphalt with concrete base . . . . .	\$1,095 90
Less amount paid in 1895 . . . . .	714 16
	<hr/>
	381 74
	<hr/>
	\$483 74
Work done by the Sewer Division . . . . .	<hr/> \$678 53

#### STREET IMPROVEMENTS, WARD 6.

**Batterymarch street**, between Milk and Kilby square, asphalted, edgestone reset, brick sidewalks relaid, crossings relaid.

Labor . . . . .	\$414 00
Teaming . . . . .	194 00
Edgestone . . . . .	19 47
Paving . . . . .	17 57
Templets . . . . .	11 20

Amount paid to Barber Asphalt Paving Co.:	
428.9 square yards Trinidad lake asphalt with concrete base and binder . . . . .	\$1,286 70
	<hr/>
	\$1,942 94

Amount retained from Barber Asphalt Paving Co.,

	64 33
	<hr/>
	1,878 61

**City Hall avenue**, between School street and Court square, paved with asphalt blocks on a gravel base, brick sidewalks relaid. Length, 196 feet; area, 271 square yards.

Labor . . . . .	\$346 80
Gravel and sand . . . . .	55 90
Electric lights . . . . .	14 45
	<hr/>
Carried forward . . . . .	\$417 15

<i>Brought forward</i>	.	.	.	.	\$417 15
Amount paid to H. Gore & Co.:					
262.5 square yards asphalt blocks furnished and laid	.	.	.	\$787 50	
7.3 square yards brick paving, herringbone	.	.	.	1 82	
				—	789 32
					\$1,206 47

**Devonshire street**, between Dock square and State street, paved with large granite blocks on a concrete base with pitch joints, edgestone reset, brick sidewalks relaid, crossings laid. Length, 303 feet; area, 1,155 square yards.

Labor	.	.	.	.	.	.	\$1,271 75
Teaming	.	.	.	.	.	.	1,169 50
Gravel and sand	.	.	.	.	.	.	200 10
23,975 large granite blocks	.	.	.	.	.	.	1,156 55
226.1 feet flagging	.	.	.	.	.	.	131 14
70 feet edgestone	.	.	.	.	.	.	43 40
6,000 paving bricks	.	.	.	.	.	.	57 00
Electric lights	.	.	.	.	.	.	19 95
Masonry	.	.	.	.	.	.	3 50
Templets	.	.	.	.	.	.	37 24

Amount paid to J. B. O'Rourke & Co.:							
187.5 cubic yards American cement concrete base	.	.	.	.	\$937 50	.	
1,130 square yards block paving, pitch joints	.	.	.	.	1,017 00	.	
247 feet edgestone reset	.	.	.	.	19 76	.	
198 square yards brick paving relaid	.	.	.	.	35 64	.	
159 square yards block paving relaid	.	.	.	.	55 65	.	
159 square yards barring and excavating	.	.	.	.	15 90	.	
					—		
					\$2,081 45		

Less 13 double loads screened gravel	.	.	.	\$19 37			
Less 60 single loads screened gravel	.	.	.	45 00	—	64 37	
					—		
							2,017 08
							\$6,107 21

**Garden Court street**, between Fleet street and North square, paved with large granite blocks, edgestone reset, brick sidewalks relaid, crossings relaid. Length, 230 feet; area, 358 square yards.

Labor	.	.	.	.	.	.	\$462 91
Teaming	.	.	.	.	.	.	338 50
					—		

<i>Carried forward</i>	.	.	.	.	.	.	\$801 41
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<i>Brought forward . . . . .</i>	\$801 41
Gravel and sand . . . . .	141 85
8,910 large granite blocks . . . . .	429 82
8,000 paving brick . . . . .	76 00
80 feet edgestone . . . . .	49 60
Masonry . . . . .	14 00
Paving . . . . .	187 95
	<hr/>
	\$1,700 63

**North street**, between Blackstone street and Merchants row, paved with large granite blocks on a concrete base with pitch joints, edgestone reset, brick sidewalks relaid, crossings relaid. Length, 162 feet; area, 648 square yards.

Labor . . . . .	\$449 50
Teaming . . . . .	574 50
Gravel and sand . . . . .	86 63
150 feet flagging . . . . .	90 00
16 feet circular edgestone . . . . .	20 80
11,945 large granite blocks . . . . .	567 48
Templets . . . . .	38 45

Amount paid to Metropolitan Construction Co.:	
618.7 square yards block paving, pitch	
joints . . . . .	\$556 83
52 feet edgestone set . . . . .	7 80
37 square yards brick paving . . . . .	8 51
103.1 cubic yards American cement, concrete base . . . . .	515 50
618.7 square yards paving removed and excavated . . . . .	154 68
109 square yards barring and preparing bed . . . . .	54 50
	<hr/>
	1,297 82
	<hr/>
	\$3,125 18

**North square**, between No. 20 and North street, paved with small blocks, edgestone reset, brick sidewalks relaid, crossings relaid. Area, 350 square yards.

Labor . . . . .	\$182 65
Teaming . . . . .	111 00
Gravel and sand . . . . .	66 25
2,500 paving brick . . . . .	23 75
Advertising . . . . .	8 20
Paving . . . . .	96 15
	<hr/>
	\$488 00

**North Margin street.**

Amount retained from Barber Asphalt Paving Co., for work done in 1895 . . . . .	<u>\$173 51</u>
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**North Market street, repaved.**

Labor . . . . .	\$300 15
Teaming . . . . .	22 50
Gravel . . . . .	38 00
Blocks . . . . .	16 50
Cement . . . . .	132 50
	<u>\$509 65</u>

**Prince street**, between Hanover street and North square, paved with large granite blocks, edgestone reset, brick sidewalks relaid, crossings relaid. Length, 140 feet. Area, 218 square yards.

Labor . . . . .	\$389 85
Teaming . . . . .	330 50
Gravel . . . . .	73 05
Edgestone . . . . .	26 04
Flagging . . . . .	19 72
Brick . . . . .	38 00
Blocks . . . . .	349 74
Masonry . . . . .	10 50
Paving . . . . .	123 48
	<u>\$1,360 88</u>

**Stillman street**, between Charlestown and Endicott streets, asphalted, edgestone reset, brick sidewalks relaid, crossings relaid. Length, 202 feet; area, 600 square yards.

Labor . . . . .	\$769 35
Teaming . . . . .	470 00
Gravel and sand . . . . .	254 13
Edgestone . . . . .	43 90
Flagging . . . . .	15 60
14,300 gutter blocks . . . . .	564 85
Brick . . . . .	85 50
Advertising . . . . .	10 34

Amount paid to Dennis J. Kiley & Co.:

478 feet edgestone set . . . . .	\$38 24
748 square yards block paving . . . . .	187 00
237 square yards brick paving . . . . .	42 66
	<u>267 90</u>
	<u>\$2,481 57</u>

**Tileston street.**

Amount retained from Barber Asphalt Paving Co., for work done under contract in 1895	<u>\$19 54</u>
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**Water street**, between Broad street and Kilby square, asphalted, edgestone reset, brick sidewalk relaid, crossings relaid. Length, 252 feet; area, 654 square yards.

Labor . . . . .	\$782 11
Teaming . . . . .	337 50
Gravel and sand . . . . .	34 55
321 feet edgestone . . . . .	199 02
12.2 feet circular edgestone . . . . .	15 87
10,000 paving brick . . . . .	95 00
50 feet flagging . . . . .	29 00
Templets . . . . .	28 85
Advertising . . . . .	7 60

Amount paid to J. B. O'Rourke & Co.:  
159.3 square yards block paving . . . . .

143 37

Amount paid to D. J. Kiley & Co.:  
539 feet edgestone set . . . . .

\$43 12

335 square yards brick paving . . . . .

63 90

11 square yards crossings laid . . . . .

2 75

16 square yards block paving . . . . .

4 00

118 77

Amount paid to Barber Asphalt Paving Co.:  
657.8 square yards Trinidad lake asphalt with  
American cement, concrete base . . . . .

1,973 40

\$3,760 04

Amount retained from Barber Asphalt Paving Co. . . . .

98 67

\$3,661 37

Work done by the Sewer Division . . . . .

\$289 47

**STREET IMPROVEMENTS, WARD 7.**

**Corning street**, between Shawmut avenue and Washington streets, asphalted.

Labor . . . . .	\$11 75
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Amount paid to Barber Asphalt Paving Co.:  
680.8 square yards Trinidad asphalt on existing  
concrete base . . . . .

1,361 60

*Carried forward* . . . . .

\$1,373 35

<i>Brought forward</i>	\$1,373 35
Amount retained from Barber Asphalt Paving Co.:	68 08
	<hr/>
	\$1,305 27
Amount paid out of Street Improvements, Ward 7 . . . . .	\$1,293 52
Amount paid out of Street Improvements, Ward 9 . . . . .	11 75
	<hr/>
	\$1,305 27

**Edinboro' street.**

Amount retained from Barber Asphalt Paving Co., for work done under contract in 1895 . . . . .	\$136 17
	<hr/>

**Milk street**, between Oliver and India streets, paved with large granite blocks on a concrete base with pitch joints, edgestone reset, brick sidewalks relaid, crossings relaid. Length, 556 feet; area, 1,870 square yards.

Labor . . . . .	\$2,191 16
Teaming . . . . .	1,567 00
Gravel and sand . . . . .	351 62
11,000 paving brick . . . . .	104 50
755 feet flagging . . . . .	437 90
75 feet edgestone . . . . .	46 50
24,445 large paving blocks . . . . .	1,179 23
Templets . . . . .	38 33
Masonry . . . . .	24 50
Advertising . . . . .	3 10

*Amount paid to Jones & Meehan :*

325.47 cubic yards American cement, concrete base . . . . .	\$1,627 35
1,996 square yards granite block paving, pitch joints . . . . .	1,796 40
444 feet edgestone reset . . . . .	35 52
288.5 square yards brick sidewalks relaid . . . . .	51 93
590.5 square yards block gravel, gravel joints . . . . .	147 63
	<hr/>
	3,658 83
	<hr/>
	\$9,602 67

**Ohio street**, between Washington street and Shawmut avenue, asphalted, edgestone reset, brick sidewalks relaid. Length, 343 feet; area, 268 square yards.

Labor . . . . .	\$256 65
Teaming . . . . .	110 50
	<hr/>

<i>Carried forward</i> . . . . .	\$367 15
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<i>Brought forward</i>	.	.	.	.	.	\$367 15
Gravel	.	.	.	.	.	10 78
2,300 paving bricks	.	.	.	.	.	23 00
Templets	.	.	.	.	.	7 85
Masonry	.	.	.	.	.	154 00
Amount paid to Boston Asphalt Co.:						
263.7 square yards Sicilian rock asphalt with cement, concrete base	.	.	.	.	.	791 10
						<hr/>
						\$1,353 88
Amount retained from Boston Asphalt Co.	.	.	.	.	.	39 56
						<hr/>
						\$1,314 32

**West street.**

Amount retained from H. Gore & Co., for work done under contract in 1895	.	.	.	\$147 26
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**Winter street**, between Washington and Tremont streets,  
paved with large granite blocks on a concrete base with pitch  
joints, edgestone reset, brick sidewalks relaid. Length, 503  
feet; area, 1,146 square yards.

Labor	.	.	.	.	.	\$807 70
Teaming	.	.	.	.	.	1,231 00
Gravel	.	.	.	.	.	150 08
25,860 large granite blocks	.	.	.	.	.	1,810 20
336 feet flagging	.	.	.	.	.	194 88
131 feet edgestone and 1 large corner	.	.	.	.	.	86 82
Cement	.	.	.	.	.	22 00
Lumber	.	.	.	.	.	91 88
Masonry	.	.	.	.	.	210 00
Templets	.	.	.	.	.	9 60
Advertising	.	.	.	.	.	21 00
19,000 paving brick	.	.	.	.	.	185 25

Amount paid to H. Gore & Co.:						
185.3 cubic yards American cement, concrete base	.	.	.	.	\$926 50	
1,141.4 square yards block paving with pitch joints	.	.	.	.	1,027 26	
292 feet edgestone reset	.	.	.	.	23 36	
181 square yards brick sidewalks relaid,	.	.	.	.	32 58	
53.5 square yards block paving, gravel joints	.	.	.	.	13 38	
Extra work as ordered	.	.	.	.	152 41	
					<hr/>	2,175 49
					<hr/>	\$6,995 90
Work done by the Sewer Division	.	.	.	.	<hr/>	\$879 77

## STREET IMPROVEMENTS, WARD 8.

**Ashland street**, between Chambers and Leverett streets, paved with gutter blocks, edgestone reset, brick sidewalks relaid, crossings relaid. Length, 210 feet; area, 523 square yards.

Labor . . . . .	\$590 60
Teaming . . . . .	531 00
Gravel . . . . .	141 00
15,100 gutter blocks . . . . .	596 45
56 feet flagging . . . . .	32 48
6,000 paving brick . . . . .	57 00
35 feet edgestone . . . . .	21 70
Masonry . . . . .	24 50
Paving . . . . .	236 28
	<hr/>
	\$2,231 01

**Barton street**

Amount retained from Boston Asphalt Co., for work done under contract in 1895 . . . . .	\$96 41
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**Cotting street**, between Leverett and Lowell streets, paved with small blocks, edgestone reset, brick sidewalks relaid, crossings relaid.

Labor . . . . .	\$603 52
Teaming . . . . .	451 50
Gravel . . . . .	123 68
100.2 feet flagging . . . . .	58 11
15,470 gutter-blocks . . . . .	611 07
7,000 paving brick . . . . .	66 50
35 feet edgestone . . . . .	21 70
Paving . . . . .	256 41
	<hr/>
	\$1,292 49

**Lowell street**, between Causeway and Brighton streets, paved with large blocks on a gravel base with pitch-joints, edgestone reset, brick sidewalks relaid, crossings relaid. Length, 1,139 feet; area, 5,545 square yards.

Labor . . . . .	\$4,039 65
Teaming . . . . .	2,768 50
Gravel and sand . . . . .	689 67
92,662 large granite blocks . . . . .	4,417 57
424 feet flagging . . . . .	249 42
218.2 feet edgestone . . . . .	135 28
27 $\frac{5}{8}$ feet circular edgestone . . . . .	36 77
40,000 paving brick . . . . .	380 00
Masonry . . . . .	87 50
	<hr/>
<i>Carried forward</i> . . . . .	\$12,804 36

<i>Brought forward</i>	.	.	.	.	.	\$12,804 36
Cement	:	:	:	:	:	16 50
Advertising	:	:	:	:	:	26 64
Sundries	:	:	:	:	:	4 67
Amount paid to D. J. Kiley & Co.:						
5,752 square yards block paving, pitch-joints						\$5,176 80
1,933 feet edgestone set						154 64
1,272 square yards brick paving						228 96
86 square yards block paving, gravel-joints						21 50
Extra work, as ordered						40 25
						<hr/>
						5,622 15
						<hr/>
						\$18,474 32

**Milton street repaired.**

Labor	.	.	.	.	.	\$324 30
Work done by the Sewer Division						\$382 05

**STREET IMPROVEMENTS, WARD 9.****Acton street work unfinished.**

Labor	.	.	.	.	.	\$273 50
Teaming	:	:	:	:	:	267 00
Gravel and sand	:	:	:	:	:	21 20
Flagging	:	:	:	:	:	16 82
2,050 paving brick						20 50
Masonry	:	:	:	:	:	189 00
Advertising	:	:	:	:	:	9 50
						<hr/>
						\$797 52

**East Dedham street**, between Harrison avenue and Washington street, macadamized, edgestone reset, brick sidewalks relaid, gutters paved. Length, 512 feet; area, 1,934 square yards.

Labor	.	.	.	.	.	\$174 80
Teaming	:	:	:	:	:	1,815 00
Gravel	:	:	:	:	:	320 63
Stone	:	:	:	:	:	777 15
Steam roller						10 00
185 feet edgestone						114 70
320 feet flagging						185 60
17,500 paving brick						174 45
450 large blocks						24 75
<i>Carried forward</i>	.	.	.	.	.	\$3,097 08

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<i>Brought forward</i>	.	.	.	.	\$3,097 08
Cement	.	.	.	.	22 00
Masonry	.	.	.	.	315 00
Advertising	.	.	.	.	5 40
Amount paid to Jones & Meehan:					
1,023.7 feet edgestone set	.	.	.	\$153 56	
721 square yards block paving	.	.	.	252 35	
803.2 square yards brick paving	.	.	.	184 74	
				—	590 65
					—
					\$4,030 13

**Hamburg street**, between Mystic street and Harrison avenue, asphalted, edgestone reset, brick sidewalks relaid. Length, 383 feet; area, 596 square yards.

Labor	.	.	.	.	.	\$351 10
Teaming	.	.	.	.	.	295 22
Gravel	.	.	.	.	.	17 16
59 feet edgestone	.	.	.	.	.	36 58
59 feet flagging	.	.	.	.	.	34 22
150 large blocks	.	.	.	.	.	8 25
6,300 paving bricks	.	.	.	.	.	63 00
Masonry	.	.	.	.	.	196 00
Templets	.	.	.	.	.	7 80
Advertising	.	.	.	.	.	12 00
Amount paid to Boston Asphalt Co.:						
5,864 square yards Sicilian rock asphalt with Amer-						
ican cement concrete base	.	.	.	.	.	1,759 20
						—
						\$2,780 58
Amount retained from Boston Asphalt Co.	.	.	.	.	.	87 96
						—
						\$2,692 57
Amount paid out of Street Improve-						
ments, Ward 9	.	.	.	\$2,680 57		
Amount paid out of Street Improve-						
ments, Wards 17 and 18	.	.	.	12 00		
				—		
						2,692 57

**Laconia street**, between Harrison avenue and Washington street, asphalted, edgestone set, brick sidewalks relaid. Length, 330 feet; area, 725 square yards.

Labor	.	.	.	.	.	\$1,247 65
Teaming	.	.	.	.	.	844 50
Gravel	.	.	.	.	.	91 70
350 feet edgestone	.	.	.	.	.	217 00
31 $\frac{1}{2}$ feet circular edgestone	.	.	.	.	.	40 78
						—
<i>Carried forward</i>	.	.	.	.	.	\$2,441 58

<i>Brought forward</i>	.	.	.	.	\$2,441 58
140 feet flagging	.	.	.	.	81 20
750 blocks	.	.	.	.	30 04
9,750 paving brick	.	.	.	.	97 50
Templets	.	.	.	.	21 60
Masonry	.	.	.	.	273 00
Advertising	.	.	.	.	17 50
Amount paid to Barber Asphalt Paving Co.:					
686.76 square yards Trinidad lake asphalt with binder and concrete base	.	.	.	.	2,060 28
					<hr/>
Amount retained from Barber Asphalt Paving Co.					\$5,022 70
					103 01
					<hr/>
					\$4,919 69

**Meander street**, between East Dedham and Malden streets, asphalted, edgestone reset, brick sidewalks relaid. Length, 307 feet; area, 460 square yards.

Labor	.	.	.	.	\$310 50
Teaming	.	.	.	.	310 00
Gravel	.	.	.	.	14 27
175 large blocks	.	.	.	.	8 08
Edgestone	.	.	.	.	11 66
Flagging	.	.	.	.	14 50
4,300 paving brick	.	.	.	.	43 00
Masonry	.	.	.	.	147 00
Advertising	.	.	.	.	9 80

Amount paid to Boston Asphalt Co.:					
417.2 square yards Sicilian rock asphalt with American cement, concrete base	.	.	.	.	1,251 60
					<hr/>
Amount retained from Boston Asphalt Co.	.	.	.	.	\$2,120 41
					62 58
					<hr/>
Amount paid out of Street Improve-					

ments, Ward 9	.	.	.	\$2,048 03
Amount paid out of Street Improve-				
ments, Wards 17 and 18	.	.	.	9 80

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\$2,057 83

**Mystic street**, between Malden and East Brookline streets, asphalted, edgestone reset, brick sidewalks relaid. Length, 636 feet; area, 890 square yards.

Labor	.	.	.	.	\$843 75
Teaming	.	.	.	.	530 81
Gravel	.	.	.	.	46 81

*Carried forward* . . . . . \$1,421 37

STREET DEPARTMENT — PAVING DIVISION. 203

<i>Brought forward</i>	.	.	.	.	\$1,421	37
245 feet edgestone and 4 small corners	.	.	.	.	165	30
150 feet flagging	.	.	.	.	87	00
400 large blocks	.	.	.	.	19	30
5,050 paving brick	.	.	.	.	50	50
Masonry	.	.	.	.	210	00
Templets	.	.	.	.	7	80
<i>Amount paid to Boston Asphalt Co.:</i>						
803.7 square yards Sicilian rock asphalt with American cement concrete base	.	.	.	\$2,411	10	
11.9 cubic yards concrete base	.	.	.	59	50	
				—————		
					2,470	60
<i>Amount retained from Boston Asphalt Co.</i>						
					\$4,431	87
					123	53
					—————	
					\$4,308	34

Norwich street, between Mystic and Meander streets, asphalted, edgestone reset, brick sidewalks relaid. Length, 221 feet; area, 344 square yards.

Labor . . . . .	\$303	15
Teaming . . . . .	262	50
Gravel . . . . .	14	28
35 feet edgestone . . . . .	21	70
30 feet flagging . . . . .	17	40
4,050 paving brick . . . . .	40	50
150 large blocks . . . . .	8	25
Masonry . . . . .	140	00
Amount paid to Boston Asphalt Co.:		
339.4 square yards Sicilian rock asphalt with Amer- ican cement concrete base . . . . .	1,018	20
Amount retained from Boston Asphalt Co. . . . .	\$1,825	98
	50	91
	\$1,775	07

**Taylor street**, between Dwight and Milford streets, asphalted, edgestone reset, brick sidewalks relaid. Length, 196 feet; area, 262 square yards.

Labor . . . . .	\$91 15
Teaming . . . . .	58 50
400 paving brick . . . . .	4 00
Gravel and sand . . . . .	6 00
Masonry . . . . .	102 00
<i>Carried forward</i> . . . . .	\$261 65

<i>Brought forward . . . . .</i>	\$261 65
Amount paid to Boston Asphalt Co.:	
257.2 square yards Sicilian rock asphalt on existing concrete base . . . . .	514 40
	_____
	\$776 05
Amount retained from Boston Asphalt Co. . . . .	25 72
	_____
	\$750 33
 <b>Union Park street, between Harrison avenue and Washington street, macadamized, edgestone reset, brick sidewalks relaid. Length, 460 feet; area, 1,007 square yards.</b>	
Labor . . . . .	\$485 30
Teaming . . . . .	392 00
Gravel . . . . .	50 25
Stone . . . . .	206 33
Flagging . . . . .	9 28
10,700 paving brick . . . . .	104 32
Masonry . . . . .	245 00
	_____
	\$1,492 48
Work done by the Sewer Division . . . . .	\$912 21
	_____

#### STREET IMPROVEMENTS WARD 10.

**Boylston street**, between Dartmouth street and B. & A. R.R. bridge (southerly side), edgestone set, gutters paved, fence built, and  
**Exeter street**, between Huntington avenue and Boylston street, filled, macadamized.

Labor . . . . .	\$2,655 32
Teaming . . . . .	1,734 50
Gravel . . . . .	896 78
Filling . . . . .	479 70
Stone . . . . .	4,771 47
Steam roller . . . . .	10 00
1,071 feet edgestone . . . . .	664 02
Hardware . . . . .	19 77
Lumber . . . . .	299 88
 Amount paid to William Higgins:	
1,302 feet edgestone set . . . . .	\$104 16
800 feet edgestone reset . . . . .	120 00
532 square yards block paving . . . . .	133 00
267 square yards block paving . . . . .	93 45
	_____
	450 61

*Carried forward . . . . .* \$11,982 05

<i>Brought forward</i>	• • . . .	\$11,982 05
Amount paid out of Street Improvements, Ward 10	• . . . .	\$3,698 91
Amount paid out of Street Improvements, Ward 11	• . . . .	3,822 59
Amount paid out of Paving Division	• . . . .	4,460 55
	—————	<u>\$11,982 05</u>

**Columbus avenue.**

Amount retained from H. Gore & Co., for work done under contract in 1895	• . . . .	<u>\$719 00</u>
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**Dartmouth street**, between Copley square and N. Y., N. H. & H. R.R., macadamized, edgestone relaid, gutters repaved, brick sidewalks relaid, crossings relaid. Length, 467 feet; area 1,764 square yards.

Labor	• . . . .	\$170 20
Teaming	• . . . .	237 00
Gravel	• . . . .	117 59
Stone	• . . . .	88 27
	—————	<u>\$613 06</u>

Amount paid out of Street Improvements, Ward 10	• . . . .	\$324 40
Amount paid out of Street Improvements, Ward 11	• . . . .	128 99
Amount paid out of Paving Division	• . . . .	159 67
	—————	<u>\$613 06</u>

**Holyoke street**, macadamized, edgestone reset, brick sidewalks relaid. Length, 460 feet; area, 1,688 square yards.

Labor	• . . . .	\$302 00
Teaming	• . . . .	673 00
Gravel	• . . . .	190 11
Stone	• . . . .	356 78
Steam roller	• . . . .	25 00
2,000 paving bricks	• . . . .	20 00
Masonry	• . . . .	98 00
Advertising	• . . . .	18 00
	—————	<u>\$1,682 89</u>

**St. Botolph street**, between Irvington street and Massachusetts avenue, macadamized, gutters repaved, edgestone set and reset, brick sidewalks laid and relaid, crossings laid and relaid. Length, 2,257 feet; area, 8,526 square yards.

Labor	• . . . .	\$895 85
Teaming	• . . . .	4,186 90

<i>Carried forward</i>	• . . . .	\$5,082 75
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<i>Brought forward</i>	.	.	.	.	\$5,082 75
Gravel and sand	.	.	.	.	4,249 66
Stone	.	.	.	.	3,226 00
Steam roller	.	.	.	.	200 00
Loam and sods	.	.	.	.	111 00
23,250 paving brick	.	.	.	.	357 75
6 large corners	.	.	.	.	33 60
300 feet flagging	.	.	.	.	174 00
Advertising	.	.	.	.	9 00

Amount paid to James Grant & Co.:					
5,682.9 feet edgestone set	.	.	.	\$852 44	
2,668.5 square yards block paving	.	.	.	933 98	
610 feet fence curb set	.	.	.	122 00	
3,493 square yards brick paving	.	.	.	803 39	
108 square yards brick paving, herringbone	.	.	.	49 68	
12.7 square yards brick paving, cement joints	.	.	.	6 35	
Extra work resetting iron fence and raising coal chutes	.	.	.	115 00	
				—	2,882 84
					\$16,326 60

Amount paid out of Street Improvements, Ward 10	.	.	\$14,713 35	
Amount paid out of Paving Division,			1,613 25	
			—	\$16,326 60

<b>Yarmouth street</b> , macadamized, edgestone reset, brick sidewalks relaid. Length, 464 feet; area, 1,753 square yards.				
Labor	.	.	.	\$280 60
Teaming	.	.	.	175 00
Stone	.	.	.	472 85
Masonry	.	.	.	7 00
			—	935 45

Amount paid out of Street Improvements, Ward 10	.	.	\$761 62	
Amount paid out of Paving Division	.	.	173 83	
			—	935 45

Work done by the Sewer Division	.	.	.	\$1,024 82
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#### STREET IMPROVEMENTS, WARD 11.

**Arlington street**, between Boylston and Marlborough streets, macadamized, gutters repaved, edgestone reset, brick sidewalks relaid, crossings relaid. Length, 1,064 feet; area, 5,911 square yards.

Labor . . . . .	\$1,160	67
Teaming . . . . .	3,361	00
Gravel and sand . . . . .	1,792	96
4,600 gutter blocks . . . . .	181	70
289 feet flagging . . . . .	167	62
10,000 paving bricks . . . . .	135	00
Stone . . . . .	1,961	03
Steam roller . . . . .	190	00
Advertising . . . . .	8	63

Amount paid to James Grant & Co.:		
1,334.8 square yards block paving . . .	\$467	18
2,064.5 feet edgestone set . . . . .	309	68
3,120 square yards brick paving . . . .	717	60
171 square yards flagging crossings . . .	59	85
	1,554	31
		—
	\$10,512	92

Amount paid out of Street Improve- ments, Ward 11 . . . . .	\$10,347	68
Amount paid out of Paving Division . . . .	165	24
		—
	\$10,512	92

Berkeley street, between Boylston and Beacon streets, macadamized, gutters repaved, edgestone reset, brick sidewalks relaid, crossings relaid. Length, 1,325 feet; area, 5,889 square yards.

Labor . . . . .	\$914	70
Teaming . . . . .	1,646	00
Gravel . . . . .	424	81
Stone . . . . .	577	12
Steam roller . . . . .	110	00
2,000 paving brick . . . . .	20	00

Amount paid to James Grant & Co.:		
714 feet edgestone set . . . . .	\$57	12
649 square yards block paving . . . .	194	25
651 square yards brick paving . . . .	117	18
	368	55
		—
	\$4,061	18

Amount paid out of Street Improve- ments, Ward 11 . . . . .	\$3,157	54
Amount paid out of Paving Division . . . .	903	64
		—
	\$4,061	18

#### Brimmer street.

Amount retained from Barber Asphalt Paving Co. for work done under contract in 1895 . . . .	\$490	80
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**Brookline avenue.**

Teaming . . . . .	\$258 50
Gravel . . . . .	133 76
Stone . . . . .	39 60
Advertising . . . . .	9 00
	—————
	\$440 86

Amount paid out of Street Improvements, Ward 11 . . . . . \$267 50

Amount paid out of Paving Division . . . . . 173 36

—————

\$440 86

**Charles street.**

Amount retained from H. Gore & Co. for work done under contract in 1895 . . . . . \$25 49

**Mt. Vernon street**, between Charles and Willow streets, 125 square yards, repaved; 1,543 square yards macadamized, edgestone reset, brick sidewalks relaid, crossings relaid.

Labor . . . . .	\$891 25
Teaming . . . . .	454 50
Gravel . . . . .	79 95
8,000 paving brick . . . . .	76 00
Masonry . . . . .	10 50
	—————
	\$1,512 20

**Pinckney street.**

Amount retained from Barber Asphalt Paving Co. for work done under contract in 1895 . . . . . \$106 50

Work done by the Sewer Division . . . . . \$752 37

**STREET IMPROVEMENTS, WARD 12.**

**East Brookline street**, between Harrison avenue and Washington street, macadamized, edgestone reset, brick sidewalks relaid, gutters repaved. Length, 567 feet; area, 2,142 square yards.

Labor . . . . .	\$702 62
Teaming . . . . .	979 50
Gravel and sand . . . . .	273 92
50 feet flagging . . . . .	29 00
20,640 paving bricks . . . . .	201 24
Stone . . . . .	683 28
Steam roller . . . . .	60 00
Masonry . . . . .	294 00
	—————

*Carried forward* . . . . . \$3,223 56

<i>Brought forward . . . . .</i>	\$3,223 56
Amount paid to Jones and Meehan:	
1,010 feet edgestone set . . . . .	\$80 80
444 square yards block paving . . . . .	111 00
981 square yards brick paving . . . . .	167 58
	—————
	\$359 38
	—————
	\$3,582 94

**Massachusetts avenue**, between Huntington avenue and St. Botolph street, macadamized, gutters repaved, edgestone reset, brick sidewalks relaid. Length, 259 feet; area, 1,727 square yards.

Labor . . . . .	\$154 65
Teaming . . . . .	66 00
Gravel and sand . . . . .	128 58
Stone . . . . .	295 77
Loam and sods . . . . .	158 12
Paving . . . . .	244 12
	—————
	\$1,047 24

**Reed street**, between Northampton and Hunneman streets, macadamized. Length, 1,205 feet; area, 3,036 square yards.

Labor . . . . .	\$273 42
Teaming . . . . .	738 50
Stone . . . . .	1,405 93
	—————

\$2,417 85

Amount paid out of Street Improve- ments, Ward 12 . . . . .	\$1,775 20
Amount paid out of Street Improve- ments, Ward 17 . . . . .	642 65
	—————

\$2,417 85

**West Brookline street**, between Tremont and Washington streets, macadamized, gutters repaved, edgestone reset, brick sidewalks relaid. Length, 1,035 feet; area, 3,680 square yards.

Labor . . . . .	\$309 38
Teaming . . . . .	1,812 80
Gravel and sand . . . . .	628 25
275 feet flagging . . . . .	159 50
159 feet edgestone and 8 small corners . . . . .	100 58
48,705 paving bricks . . . . .	478 99
Stone . . . . .	1,485 78
Steam roller . . . . .	175 00
Masonry . . . . .	511 00
Cement . . . . .	11 00
Advertising . . . . .	7 60

*Carried forward . . . . .* \$5,679 88

<i>Brought forward . . . . .</i>	\$5,679 88
Amount paid to Chas. E. Barnes:	
1,473 feet edgestone set . . . . .	\$265 14
433 square yards block paving . . . . .	151 55
729 square yards brick paving . . . . .	167 67
194 square yards brick paving, herringbone . . . . .	83 42
171 square yards excavation . . . . .	17 10
	684 88
Amount paid to Jones & Meehan:	
2,364.3 feet edgestone set . . . . .	\$854 65
1,127 square yards block paving . . . . .	894 45
95.8 square yards round paving . . . . .	33 53
1,738.8 square yards brick paving . . . . .	399 92
34.4 square yards brick paving, herringbone on edge . . . . .	18 92
	1,201 47
	\$7,566 28
Work done by the Sewer Division . . . . .	\$408 90

## STREET IMPROVEMENTS, WARD 13.

**Athens street.**

Amount retained from Boston Asphalt Company for work done under contract in 1895 . . . . .	\$121 27
Work done by the Bridge Division . . . . .	\$3,582 15

## STREET IMPROVEMENTS, WARD 14.

L street, between Ninth street and Broadway, macadamized, gutters repaved, edgestone reset, brick sidewalks relaid, cross- ings laid. Length, 1,753 feet; area, 6,622 square yards.	
Labor . . . . .	\$2,639 25
Teaming . . . . .	755 50
Gravel . . . . .	274 00
Stone . . . . .	1,812 81
332 feet flagging . . . . .	192 56
15,000 paving bricks . . . . .	146 25
Advertising . . . . .	35 25

## Amount paid to William Higgins:

2,079.4 feet edgestone set . . . . .	\$166 35
169.2 square yards block paving . . . . .	42 30
902 square yards round paving . . . . .	225 50
1,584.8 square yards brick paving . . . . .	285 27
84.5 square yards brick paving, herringbone . . . . .	30 42
	749 84
	\$6,605 46

Work done by the Sewer Division . . . . . \$797 14

## STREET IMPROVEMENTS, WARD 15.

**East Fifth street**, between G and H streets, macadamized.

Labor . . . . .	\$385 25
Teaming . . . . .	106 00
Gravel . . . . .	75 00
Stone . . . . .	320 63
	<hr/>
	\$886 88

**East Fourth street**, between Linden and G streets, macadamized. Length, 171 feet; area, 646 square yards.

Labor . . . . .	\$271 40
Teaming . . . . .	141 50
Stone . . . . .	287 26
Flagging . . . . .	59 16
	<hr/>
	\$759 32

Amount paid out of Street Improvements, Ward 15 . . . . . \$703 32

Amount paid out of Street Improvements, Ward 14 . . . . .	56 00
	<hr/>
	\$759 32

**G street**, between Dorchester and Fifth streets, macadamized. Length, 886 feet; area, 3,336 square yards.

Labor . . . . .	\$724 50
Teaming . . . . .	484 50
Stone . . . . .	533 54
Advertising . . . . .	8 40
	<hr/>
	\$1,750 94

Amount paid out of Street Improvements, Ward 15 . . . . . \$1,174 29

Amount paid out of Street Improvements, Ward 14 . . . . .	576 65
	<hr/>
	\$1,750 94

**Old Harbor street**, between Thomas park and Dorchester street, macadamized. Length, 520 feet; area, 1,964 square yards.

Labor . . . . .	\$271 40
Teaming . . . . .	442 00
Gravel . . . . .	112 00
Stone . . . . .	575 11
Advertising . . . . .	18 00
	<hr/>
	\$1,418 51

**Telegraph street**, between Thomas park and Dorchester street, macadamized, gutters repaved, edgestone reset, crossings relaid, brick sidewalks relaid. Length, 926 feet; area, 3,070 square yards.

Labor . . . . .	. . . . .	\$577 30
Teaming . . . . .	. . . . .	121 50
Gravel . . . . .	. . . . .	118 41
Stone . . . . .	. . . . .	654 95
15,000 paving brick . . . . .	. . . . .	146 25
Amount paid to J. B. O'Rourke . . . . .	. . . . .	16 00
1,686.6 feet edgestone set . . . . .	. . . . .	\$252 99
50.5 square yards block paving . . . . .	. . . . .	17 68
709.1 square yards round paving . . . . .	. . . . .	248 19
1,363.9 square yards brick paving . . . . .	. . . . .	313 70
22.5 square yards brick paving, herringbone . . . . .	. . . . .	9 23
		—
		841 79
		—
		\$3,258 24

**Thomas park**, between Old Harbor and Atlantic streets, macadamized. Length, 300 feet; area, 1,000 square yards.

Labor . . . . .	. . . . .	\$239 20
Teaming . . . . .	. . . . .	27 00
Gravel . . . . .	. . . . .	78 00
Stone . . . . .	. . . . .	517 35
		—
		\$861 55

#### STREET IMPROVEMENTS, WARD 16.

**East Cottage street**, between N. Y. & N. E. R.R. and Dorchester avenue, macadamized, sidewalks gravelled, crossings laid. Length, 3,290 feet; area, 10,200 square yards.

Labor . . . . .	. . . . .	\$956 80
Teaming . . . . .	. . . . .	517 50
Gravel . . . . .	. . . . .	455 40
Stone . . . . .	. . . . .	3,142 76
Steam roller . . . . .	. . . . .	240 00
200 feet flagging . . . . .	. . . . .	116 00
Advertising . . . . .	. . . . .	24 00
Paving . . . . .	. . . . .	36 54
		—
		\$5,489 00

**Dean street**, between Howard avenue and Judson street, macadamized, gutters paved, edgestone laid, brick sidewalks laid. Length, 533 feet; area, 1,094 square yards.

Labor . . . . .	\$133 40
Teaming . . . . .	648 67
Gravel and sand . . . . .	441 45
Stone . . . . .	595 81
Amount paid to Chas. E. Barnes:	
1,081 feet edgestone set . . . . .	\$194 58
24 square yards block paving . . . . .	9 60
367 square yards round paving . . . . .	146 80
154 square yards brick paving . . . . .	43 12
6 days, paver . . . . .	\$30 00
24 days, labor . . . . .	48 00
60 days, quarrying . . . . .	150 00
80 days, grading and cleaning up . . . . .	160 00
20 days, foreman . . . . .	60 00
18 days, stonecutter . . . . .	90 00
12½ days, mason . . . . .	42 00
29 days, watchman . . . . .	58 00
	—————
	\$638 00
Plus 15 per cent . . . . .	95 70
	—————
Dynamite and explosives . . . . .	733 70
	—————
	25 00
	—————
	1,152 80
	—————
	\$2,972 13

**Fairbury street**, between Blue Hill avenue and Rand street,  
macadamized, retaining-wall built.

Labor . . . . .	\$142 60
Teaming . . . . .	324 00
Stone . . . . .	21 00
Building wall . . . . .	68 04
	—————
	\$555 64

**Leyland street**, between East Cottage street and Burgess  
street, macadamized, sidewalks built, one catch-basin built.  
Length, 715 feet; area, 2,065 square yards.

Labor . . . . .	\$414 00
Teaming . . . . .	421 00
Gravel . . . . .	42 24
Stone . . . . .	1,282 09
Advertising . . . . .	17 40
Steam-roller . . . . .	100 00
	—————
	\$2,276 73

**Monadnock street**, between Dudley and Bird streets, macadamized. (Work unfinished.) Length, 1,429 feet; area, 4,129 square yards.

Labor . . . . .	\$193 20
Teaming . . . . .	29 00
Stone . . . . .	215 94
Steam-roller . . . . .	50 00
	<hr/>
	\$488 14

Work done by the Sewer Division . . . . . \$1,716 59

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#### STREET IMPROVEMENTS, WARD 17.

**Eustis street**, between Dearborn and Magazine streets, macadamized, gutters repaved, edgestone reset, brick side walks relaid, crossings relaid. Length, 1,976 feet; area, 5,762 square yards.

Labor . . . . .	\$403 95
Teaming . . . . .	1,519 00
Gravel and sand . . . . .	1,467 90
Stone . . . . .	2,405 33
Steam roller . . . . .	210 00
48,000 paving brick . . . . .	468 00
Advertising . . . . .	44 40

Amount paid to Chas. E. Barnes:

4,010 feet edgestone set . . . . .	\$721 80
1,431.7 square yards block paving . . . . .	501 10
2,683.5 square yards brick paving . . . . .	617 21
33.2 square yards brick paving, herringbone . . . . .	14 28
9.5 square yards brick paving, herringbone on edge . . . . .	5 23
152 square yards flagging laid . . . . .	53 20

Extra work as ordered:

20 days, foreman, cleaning up and loading teams . . . . .	\$60 00
122 $\frac{1}{2}$ days, labor, cleaning up and loading teams . . . . .	244 88
20 days, mason, cementing joints . . . . .	70 00
59 days, labor, grading . . . . .	118 00
1 $\frac{1}{2}$ days, putting in retaining plank . . . . .	2 67
$\frac{2}{3}$ days, fixing manholes . . . . .	2 33
27 days, paver, repaving gutters and sidewalks . . . . .	135 00

*Carried forward* . . . . . \$632 88 \$1,912 82 \$6,518 58

<i>Brought forward</i>	. . . . .	\$632 88	\$1,912 82	\$6,518 58
16 days paver, tender, gutters and sidewalks	. . . . .	36 00		
27 days, paver laborer, gutters and sidewalks	. . . . .	54 00		
23 days, stonecutter	. . . . .	115 00		
92 days, labor, barring and ramming	. . . . .	184 00		
13 days, watchman, lighting	. . . . .	26 00		
			<hr/>	
		\$1,047 88		
Add 15 per cent	. . . . .	157 17	<hr/>	
			1,205 05	<hr/>
				\$3,117 87
				<hr/>
				\$9,636 45
Amount paid out of Street improvements, Ward 17	. . . . .	\$8,320 84		
Amount paid out of Street Improvements, Ward 12	. . . . .	777 87		
Amount paid out of Paving Division	. . . . .	537 74	<hr/>	
				\$9,636 45
				<hr/>

<b>Island street</b> , between Hampden and Magazine streets, macadamized. Length, 708 feet; area, 2,045 square yards.				
Labor	. . . . .		\$165 60	
Teaming	. . . . .		222 00	
Stone and stone screenings	. . . . .		1,820 53	
Advertising	. . . . .		8 00	<hr/>
				\$2,216 13
Amount paid out of Street Improvements, Ward 17	. . . . .	\$1,679 60		
Amount paid out of Paving Division	. . . . .	536 53	<hr/>	
				\$2,216 13
				<hr/>

<b>Magazine street</b> , between Norfolk avenue and Swett street, graded, gutters paved. Length, 2,096 feet; area, 6,055 square yards.				
Labor	. . . . .		\$1,051 10	
Teaming	. . . . .		968 50	
Gravel	. . . . .		97 02	
Stone	. . . . .		65 31	<hr/>
				\$2,181 93
Amount paid out of Street Improvements, Ward 17	. . . . .	\$1,426 62		
<i>Carried forward</i>	. . . . .	\$1,426 62	<hr/>	\$2,181 93

<i>Brought forward</i>	. . . . .	\$1,426 62	\$2,181 93
Amount paid out of Street Improve- ments, Ward 12	. . . . .	618 00	
Amount paid out of Paving Division	. . . . .	137 31	
		—	<u>\$2,181 93</u>

**Marshfield street**, resurfaced. Length, 837 feet; area 2,419 square yards.

Labor	. . . . .	\$438 15
Teaming	. . . . .	212 00
Gravel and sand	. . . . .	267 40
Paving	. . . . .	92 16
		<u>\$1,009 71</u>

**Massachusetts avenue**, between Swett and Albany streets, paved with large granite blocks, edgestone set, gravel sidewalks built. Length, 519 feet; area, 3,575 square yards.

Labor	. . . . .	\$1,926 69
Teaming	. . . . .	1,077 19
Gravel	. . . . .	2,072 30
850 feet flagging	. . . . .	498 00
44,533 large paving blocks	. . . . .	1,918 75
2,875 asphalt blocks	. . . . .	115 00
734 feet edgestone, 4 large and two small corners	. . . . .	484 18
10,500 paving bricks	. . . . .	102 50
Lumber	. . . . .	46 21
Masonry	. . . . .	42 00
Rent	. . . . .	80 00
Sundries	. . . . .	12 00
Advertising	. . . . .	18 00

Amount paid to Doherty & Connors:		
3,811 square yards block paving	. . . . .	\$952 75
1,065 feet edgestone set	. . . . .	85 20
124 square yards flagging laid	. . . . .	31 00
	—	<u>1,068 95</u>
		<u>\$9,456 77</u>

Amount paid out of Street Improve- ments, Ward 17	. . . . .	\$8,609 64
Amount paid out of Street Improve- ments, Ward 12	. . . . .	660 55
Amount paid out of Paving Division	. . . . .	186 58
	—	<u>\$9,456 77</u>

**Pontine street**, sidewalks made.

Teaming	. . . . .	\$10 00
Screenings	. . . . .	58 50

<i>Carried forward</i>	. . . . .	\$68 50
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<i>Brought forward</i>	.	.	.	.	.	\$68 50
Gravel and sand	.	.	.	.	.	204 70
Paving	.	.	.	.	.	50 67
						<hr/>
						\$323 87
						<hr/>
Work done by the Sewer Division	.	.	.	.	.	\$1,609 32
						<hr/>

## STREET IMPROVEMENTS, WARD 18.

**Linden Park street**, between Tremont and Cabot streets, macadamized, gutters repaved, edgestone reset, brick sidewalks relaid.

Labor	.	.	.	.	.	\$220 80
Teaming	.	.	.	.	.	1,125 00
Gravel and sand	.	.	.	.	.	1,225 95
Stone	.	.	.	.	.	568 50
12,000 paving bricks	.	.	.	.	.	117 00
Advertising	.	.	.	.	.	10 40
Amount paid to Chas. E. Barnes:						
2,496 feet edgestone set	.	.	.	.	\$449 28	
706 square yards block paving	.	.	.	.	247 10	
408 square yards round paving	.	.	.	.	142 80	
1,046 square yards brick	.	.	.	.	240 58	
					<hr/>	
						1,079 76
						<hr/>
						\$4,347 41
						<hr/>

**Tremont street** (at Cabot street), repaved.

Gravel and sand	.	.	.	.	.	\$190 10
Paving	.	.	.	.	.	298 55
						<hr/>
						\$488 65
						<hr/>

**Washington street**, between Roxbury and Eustis streets, repaved, crossings reset. Length, 1,200 feet; area, 5,333 square yards.

Labor	.	.	.	.	.	\$173 70
Teaming	.	.	.	.	.	518 00
Gravel and sand	.	.	.	.	.	1,039 35
Amount paid to Chas. E. Barnes:						
112 feet, edgestone set	.	.	.	\$20 16		
5,374 square yards block paving	.	.	.	1,880 90		
99 square yards brick paving	.	.	.	22 77		
						<hr/>
<i>Carried forward</i>	.	.	.	\$1,923 83		\$1,731 05

<i>Brought forward</i>	. . .	\$1,923 83	\$1,731 05
Extra work as ordered, resetting crossings, loading and unloading teams, cleaning up, etc.			
40 days, foreman	. . .	\$126 00	
36 days, paver	. . .	180 00	
18 days, rammer	. . .	40 50	
56 days, laborer	. . .	112 00	
140 days, laborer	. . .	280 00	
41 days, stonecutter	. . .	205 00	
46 days, watchman	. . .	92 00	
Furnishing electric lights	. . .	10 00	
		—————	
		\$1,045 50	
Add 15 per cent	. . .	156 83	
		—————	
		1,202 33	
		—————	
			3,126 16
			—————
			\$4,857 21
Work done by the Sewer Division . . .			
			—————
			\$920 49

## STREET IMPROVEMENTS, WARD 19.

**Smith street**, between Parker street and Huntington avenue, macadamized, gutters paved, edgestone reset, brick sidewalks relaid. Length, 1,750 feet; area, 5,055 square yards.

Labor	. . . . .	. . . . .	\$821 41
Teaming	. . . . .	. . . . .	1,528 00
Gravel and sand	. . . . .	. . . . .	1,653 60
Stone	. . . . .	. . . . .	2,304 33
Steam roller	. . . . .	. . . . .	160 00
20,000 paving brick	. . . . .	. . . . .	195 00
127 feet flagging	. . . . .	. . . . .	73 66
350 gutter blocks	. . . . .	. . . . .	19 25
Masonry	. . . . .	. . . . .	14 00
Advertising	. . . . .	. . . . .	19 50

Amount paid to Thomas O'Leary:			
3,300.1 feet edgestone set	. . .	\$264 01	
637.2 square yards block paving	. . .	159 30	
1,041 square yards round paving	. . .	260 25	
1890.6 square yards brick paving	. . .	340 31	
		—————	
			1,023 87
			—————
			\$7,812 62

**Wait street**, repaired.

Labor	. . . . .	. . . . .	\$23 00
Teaming	. . . . .	. . . . .	86 00
			—————
			\$109 00

Work done by the Sewer Division	. . .	\$1,500 20
		—————

## STREET IMPROVEMENTS, WARD 20.

**Blue Hill avenue**, between Warren and Savin streets, resurfaced.

Labor . . . . .	\$167 20
Teaming . . . . .	304 50
Gravel . . . . .	227 60
Stone . . . . .	582 83
Steam roller . . . . .	20 00
	<hr/>
	\$1,302 13

**Charles street**, between Ditson street and Geneva avenue, and between Ditson street and Dorchester avenue, macadamized, sidewalks repaired. Length, 1,390 feet; area, 4,015 square yards.

Labor . . . . .	\$1,200 60
Teaming . . . . .	994 00
Gravel . . . . .	142 56
Stone . . . . .	640 32
Advertising . . . . .	9 20
	<hr/>
	\$2,986 68

**Faulkner street**, between Dorchester avenue and Freeman street, macadamized. Length, 509 feet; area, 1,301 square yards.

Labor . . . . .	\$142 60
Teaming . . . . .	155 00
Gravel . . . . .	104 28
Stone . . . . .	586 54
Advertising . . . . .	27 00
	<hr/>
	\$1,015 42

**Freeport street**, between Dorchester avenue and Pleasant street, macadamized, gutters repaved, edgestone reset, crossings relaid, brick sidewalks relaid. Length, 750 feet; area, 3,300 square yards.

Labor . . . . .	\$1,065 40
Teaming . . . . .	510 00
Gravel . . . . .	432 96
Stone . . . . .	1,632 19
Steam roller . . . . .	130 00
230 feet flagging . . . . .	133 40
	<hr/>
<i>Carried forward</i> . . . . .	\$3,903 95

<i>Brought forward . . . . .</i>	\$3,903 95
<i>Amount paid to James Dolan &amp; Co.:</i>	
1,416 feet edgestone set . . . . .	\$113 28
88.5 square yards block paving . . . . .	22 13
672.4 square yards round paving . . . . .	168 10
	—
	303 51
	—
	<u>\$4,207 46</u>

**Geneva avenue**, between Bowdoin and Columbia streets, macadamized, edgestone set. Length, 2,062 feet; area, 5,536 square yards.

Labor . . . . .	\$818 55
Teaming . . . . .	593 70
Gravel . . . . .	314 16
Stone . . . . .	2,005 57
153 $\frac{1}{2}$ feet edgestone . . . . .	199 35
Paving . . . . .	31 26
	—
	<u>\$3,962 57</u>

**Hartland street**, between Sydney and Saxton streets, macadamized. Length, 319 feet; area, 922 square yards.

Labor . . . . .	\$110 40
Teaming . . . . .	85 48
Gravel . . . . .	38 28
Stone . . . . .	560 18
	—
	<u>\$794 34</u>

**Mayfield street**, between Pleasant and Bakersfield streets, macadamized, gutters paved. Length, 407 feet; area, 1,174 square yards.

Labor . . . . .	\$262 20
Teaming . . . . .	270 00
Gravel . . . . .	105 60
Stone . . . . .	404 90
Paving . . . . .	93 81
Advertising . . . . .	10 60
	—
	<u>\$1,147 11</u>

**Romsey street**, between Dorchester avenue and Sydney street, macadamized, filled, gutters paved, sidewalks repaired. Length, 1,546 feet; area, 4,466 square yards.

Labor . . . . .	\$648 60
Teaming . . . . .	413 50
<i>Carried forward . . . . .</i>	\$1,062 10

<i>Brought forward</i>	.	.	.	.	.	.	\$1,062 10
Gravel	.	.	.	.	.	.	198 00
Stone	.	.	.	.	.	.	1,216 64
Steam-roller	.	.	.	.	.	.	110 00
Paving	.	.	.	.	.	.	111 41
							<hr/>
							\$2,698 15
							<hr/>

**Sagamore street**, resurfaced.

Gravel	.	.	.	.	.	.	\$22 44
Stone	.	.	.	.	.	.	528 04
							<hr/>
							\$550 48
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**Salcombe street**, between Stoughton street and Cushing avenue, excavated, filled, edgestone set, gutters paved, sidewalks constructed, 4 catch-basins built. Length, 735 feet; area, 1,961 square yards.

Labor	.	.	.	.	.	.	\$783 37
Teaming	.	.	.	.	.	.	645 69
Gravel	.	.	.	.	.	.	195 36
Stone	.	.	.	.	.	.	238 34
Lumber	.	.	.	.	.	.	17 50
Advertising	.	.	.	.	.	.	9 00
Amount paid to James Dolan:							
1,481 feet edgestone set	.	.	.	.	\$222 15		
494.1 square yards block paving	.	.	.	.	172 94		
						<hr/>	395 09
							<hr/>
							\$2,284 35
							<hr/>

**School street**, between Harvard and Washington streets, resurfaced.

Labor	.	.	.	.	.	.	\$41 40
Teaming	.	.	.	.	.	.	60 00
Gravel	.	.	.	.	.	.	52 80
Stone	.	.	.	.	.	.	228 32
							<hr/>
							\$382 52
							<hr/>

**Washington street**, between Bowdoin street and Talbot avenue, resurfaced. Length, 3,300 feet; area, 14,667 square yards; between Brent and Ashmont streets (northerly side), and opposite estate of Dorchester Baptist Temperance Church, widened, excavated, filled, sub-graded, rock cutting, edge-stone set, gutters paved, brick sidewalks laid; corner Walton and Roslin streets. Length, 1,236 feet; area, 1,785 square

yards; between Brent and Ashmont streets (one-half street), Telford base, macadamized. Length, 1,236 feet; area, 5,493 square yards; corner Brent and Washington streets, retaining-wall constructed.

Labor . . . . .	\$2,346	83
Teaming . . . . .	1,934	28
Gravel and sand . . . . .	420	39
Stone . . . . .	1,536	67
100 feet flagging . . . . .	58	00
270 $\frac{4}{5}$ feet edgestone . . . . .	189	24
92 $\frac{4}{5}$ feet circular edgestone . . . . .	120	02
Crossing blocks . . . . .	250	00
Powder and fuse . . . . .	32	79
Laying steps . . . . .	76	00
Paving . . . . .	159	52
	\$7,123	74

Amount paid out of Street Improvements, Ward 20 . . . . .	\$2,422	93
Amount paid out of Street Improvements, Ward 24 . . . . .	4,700	81

Work done by the Bridge Division . . . . .	\$43	72
Work done by the Sewer Division . . . . .	\$1,202	14

#### STREET IMPROVEMENTS, WARD 21.

**Crawford street**, macadamized. Length, 3,560 feet; area, 10,285 square yards.

Labor . . . . .	\$1,338	99
Teaming . . . . .	1,890	59
Gravel . . . . .	923	55
Stone . . . . .	2,407	88
Paving . . . . .	73	32
Advertising . . . . .	7	40
	\$6,641	73

**Holborn street**, macadamized, gutters relaid. Length, 1,185 feet; area, 3,423 square yards.

Labor . . . . .	\$174	80
Teaming . . . . .	477	00
Gravel . . . . .	330	50
	\$982	30

**Howland street**, between Humboldt and Elm Hill avenues, macadamized, edgestone reset, gutters repaved, brick sidewalks laid. Length, 2,022 feet; area, 5,842 square yards.

Labor . . . . .	. . . . .	\$778 55
Teaming . . . . .	. . . . .	1,099 69
Gravel and sand . . . . .	. . . . .	575 65
Stone . . . . .	. . . . .	921 98
Steam-roller . . . . .	. . . . .	10 00
Edgestone . . . . .	. . . . .	26 54

Amount paid to Austin Ford & Son:

63.2 feet edgestone set . . . . .	. . . . .	\$9 48
21 square yards block paving . . . . .	. . . . .	7 35
102 square yards brick paving . . . . .	. . . . .	23 46
		_____

40 29

Amount paid to John McCourt:

1,072 feet edgestone set . . . . .	. . . . .	\$192 96
527.4 square yards block paving . . . . .	. . . . .	184 59
770.9 square yards brick paving . . . . .	. . . . .	177 31
		_____
		554 86
		_____

\$4,007 56

Amount paid out of Street Improve-

ments, Ward 21 . . . . . \$3,733 21

Amount paid out of Paving Division . . . . . 274 35

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\$4,007 56

**Maywood street** (unfinished work from 1895).

Teaming . . . . .	. . . . .	\$177 50
Gravel . . . . .	. . . . .	106 75
Paving . . . . .	. . . . .	34 48
		_____
		318 73
		_____

**Ruthven street**, macadamized. Length, 2,287 feet; area, 7,582 square yards.

Labor . . . . .	. . . . .	\$266 80
Teaming . . . . .	. . . . .	967 88
Gravel . . . . .	. . . . .	336 80
Stone . . . . .	. . . . .	448 50
Paving . . . . .	. . . . .	84 91
		_____
		82,104 89
		_____

**Sherman street**, macadamized, gutters paved, crossings laid. Length, 1,238 feet; area, 3,165 square yards.

Labor . . . . .	. . . . .	\$278 30
Teaming . . . . .	. . . . .	610 00

*Carried forward* . . . . . \$888 30

<i>Brought forward</i>	.	.	.	.	.	\$888 30
Gravel and sand	.	.	.	.	.	218 90
Stone	.	.	.	.	.	569 35
180 feet flagging	.	.	.	.	.	104 40
600 gutter blocks	.	.	.	.	.	28 35
						<hr/>
						\$1,809 30

Amount paid out of Street Improve-						
ments, Ward 21	.	.	.	.	\$1,562 78	
Amount paid out of Paving Division	.	.	.	246 52		<hr/>
					\$1,809 30	

**Walnut avenue**, macadamized. Length, 5,572 feet; area, 21,976 square yards.

Labor	.	.	.	.	.	\$407 70
Teaming	.	.	.	.	.	955 50
Gravel and sand	.	.	.	.	.	588 25
Stone	.	.	.	.	.	1,943 61
Steam roller	.	.	.	.	.	60 00
Paving	.	.	.	.	.	56 43
						<hr/>
						\$4,011 49

Amount paid out of Street Improve-						
ments, Ward 21	.	.	.	.	\$3,820 59	
Amount paid out of Street Improve-						
ments, Ward 22	.	.	.	.	190 90	<hr/>

Work done by the Sewer Division	.	.	.	.	\$1,262 36	<hr/>
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#### STREET IMPROVEMENTS, WARD 22.

**Bickford street**, edgestone set, sidewalks gravelled.

Labor	.	.	.	.	.	\$43 70
Teaming	.	.	.	.	.	374 50
Gravel	.	.	.	.	.	84 00
Paving	.	.	.	.	.	98 64
						<hr/>
						\$600 84

**Boylston street**, between Washington street and Boylston avenue, macadamized. Length, 1,292 feet; area, 3,732 square yards.

Labor	.	.	.	.	.	\$234 60
Teaming	.	.	.	.	.	220 67
Gravel	.	.	.	.	.	94 45
Stone	.	.	.	.	.	285 29

<i>Carried forward</i>	.	.	.	.	.	\$835 01
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## STREET DEPARTMENT — PAVING DIVISION. 225

<i>Brought forward</i>	.	.	.	.	\$835 01
Paving	.	.	.	.	372 34
Advertising	.	.	.	.	7 60
					<hr/>
					\$1,214 95

Amount paid out of Street Improve- ments, Ward 22	.	.	.	\$929 66
Amount paid out of Paving Division	.	.	.	285 29
				<hr/>
				\$1,214 95

**Bromley park**, crossings laid.

Labor	.	.	.	.	\$13 80
150 feet flagging	.	.	.	.	92 22
Paving	.	.	.	.	43 23
					<hr/>
					\$149 25

**Bromley street**, repaired.

Teaming	.	.	.	.	\$87 00
Sand and gravel	.	.	.	.	78 50
50 feet flagging	.	.	.	.	29 00
					<hr/>
					\$194 50

**Burroughs street**, sidewalks repaired.

Stone dust	.	.	.	.	\$88 75
					<hr/>

**Creighton street**, between Day and Sunnyside streets, mac-  
adamized, gutters paved, crossings laid, edgestone set.  
Length, 825 feet; area, 2,383 square yards.

Labor	.	.	.	.	\$291 38
Teaming	.	.	.	.	1,052 65
Gravel	.	.	.	.	843 50
Stone	.	.	.	.	1,953 94
Steam roller	.	.	.	.	140 00
304 feet flagging	.	.	.	.	176 32
Amount paid to Chas. E. Barnes:					
412 feet edgestone set	.	.	.	\$74 16	
26.8 square yards block paving	.	.	.	9 38	
509 square yards barrel gutters paved	.	.	.	229 05	
				<hr/>	
					312 59
					<hr/>
					\$4,770 38

Amount paid out of Street Improve- ments, Ward 22	.	.	.	\$4,316 21
Amount paid out of Paving Division	.	.	.	454 17
				<hr/>

\$4,770 38

**Green street**, sidewalks repaired.

Stone dust	.	.	.	\$142 50
				<hr/>

**Lamartine street**, between Green and Paul Gore streets, macadamized, edgestone reset, gutters repaved, crossings relaid.  
Length, 2,608 feet; area, 6,673 square yards.

Labor . . . . .		\$565 22
Teaming . . . . .		1,080 50
Gravel . . . . .		316 25
Stone . . . . .		1,345 87
Steam roller . . . . .		20 00
70 feet flagging . . . . .		40 25
Advertising . . . . .		14 40
Amount paid to James Dolan:		
53 square yards block paving . . . . .	\$18 55	
49 days, pavers . . . . .	220 50	
43 days, rammers . . . . .	107 50	
90 days, tenders . . . . .	202 50	
	_____	
		549 05
	_____	
		\$3,931 54

Amount paid out of Street Improve- ments, Ward 22 . . . . .	\$3,876 41
Amount paid out of Paving Division . . . . .	55 13
	_____
	\$3,931 54

Work done by the Sewer Division . . . . .	\$811 96
	_____

#### STREET IMPROVEMENTS, WARD 23.

**Ashfield street**, repaired.

Teaming . . . . .	\$135 00
Gravel . . . . .	378 00
	_____
	\$513 00

Amount paid out of Street Improve- ments, Ward 23 . . . . .	\$135 00
Amount paid out of Street Improve- ments, Ward 22 . . . . .	378 00
	_____
	\$513 00

**Baker street**, between Centre and Spring streets, resurfaced.  
Length, 2,250 feet; area, 6,500 square yards.

Labor . . . . .	\$135 15
Teaming . . . . .	76 50
Gravel . . . . .	206 10
Stone . . . . .	1,346 36
	_____
	\$1,764 11

## STREET DEPARTMENT — PAVING DIVISION. 227

**Canterbury street**, between Morton street and Ashland street, resurfaced. Length, 8,340 feet; area, 21,800 square yards.

Labor . . . . .	\$1,076 40
Teaming . . . . .	2,292 00
Gravel . . . . .	2,873 60
Stone . . . . .	1,920 00
Paving . . . . .	91 25
	<hr/>
	\$8,253 25

Amount paid out of Street Improvements, Ward 23 . . . . .	\$6,522 25
Amount paid out of Street Improvements, Ward 22 . . . . .	1,117 50
Amount paid out of Paving Division . . . . .	613 50
	<hr/>
	\$8,253 25

**Centre street**, between Spring street and Dedham line, resurfaced. Length, 7,846 feet; area, 30,002 square yards.

Labor . . . . .	\$1,660 95
Teaming . . . . .	971 02
Gravel and sand . . . . .	492 20
Filling . . . . .	2,173 00
Stone . . . . .	4,959 01
Steam roller . . . . .	50 00
Paving . . . . .	211 78
Sundries . . . . .	25 61
	<hr/>
	\$10,543 57

Amount paid out of Street Improvements, Ward 23 . . . . .	\$6,080 15
Amount paid out of Street Improvements, Ward 22 . . . . .	3,164 35
Amount paid out of Paving Division . . . . .	1,299 07
	<hr/>
	\$10,543 57

**Conway street**, repaired.

Teaming . . . . .	\$150 00
Gravel . . . . .	274 75
	<hr/>
	\$424 75

Amount paid out of Street Improvements, Ward 23 . . . . .	\$150 00
Amount paid out of Street Improvements, Ward 22 . . . . .	274 75
	<hr/>
	\$424 75

**Corey street, between Weld and Montview streets, resurfaced.**

Length, 1,300 feet; area, 3,756 square yards.

Labor . . . . .	\$124 20
Teaming . . . . .	209 00
Gravel . . . . .	66 60
Stone . . . . .	1,260 34
Paving . . . . .	147 70
	<hr/>
	\$1,807 84

Amount paid out of Street Improvements, Ward 23 . . . . . \$547 50

Amount paid out of Street Improvements, Ward 22 . . . . . 1,031 27

Amount paid out of Paving Division . . . . . 229 07

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\$1,807 84

**Fairview street, resurfaced.**

Labor . . . . .	\$78 20
Teaming . . . . .	217 50
Gravel . . . . .	260 75
	<hr/>
	\$556 45

**Hastings street, between Centre and Montview streets, resurfaced, gutters paved. Length, 1,152 feet; area, 3,329 square yards.**

Labor . . . . .	\$660 10
Teaming . . . . .	820 00
Gravel . . . . .	357 30
Stone . . . . .	1,178 57
Steam roller . . . . .	110 00
Paving . . . . .	252 50
Advertising . . . . .	28 20
	<hr/>
	\$3,406 67

Amount paid out of Street Improvements, Ward 23 . . . . . \$3,239 67

Amount paid out of Street Improvements, Ward 22 . . . . . 167 00

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\$3,406 67

**Hewlett street, between Centre and Walter streets, resurfaced. Length, 1,677 feet; area, 4,880 square yards.**

Labor . . . . .	\$523 40
Teaming . . . . .	530 50
Gravel . . . . .	124 20
Stone . . . . .	873 56
Steam roller . . . . .	50 00
Advertising . . . . .	6 00
	<hr/>

*Carried forward* . . . . . \$2,107 66

<i>Brought forward</i>	.	.	.	\$2,107 66
Amount paid out of Street Improve-				
ments, Ward 23	.	.	.	\$1,112 10
Amount paid out of Paving Division	.	.	995 56	
				<u>\$2,107 66</u>

<b>Hyde Park avenue</b> , between Forest Hills and Mt. Hope streets, resurfaced.				
Stone	.	.	.	\$1,388 14
Teaming	.	.	.	9 50
Gravel	.	.	.	16 20
				<u>\$1,418 84</u>

<b>Morton street</b> , between Washington and Harvard streets, re-surfaced. Length, 7,740 feet; area, 24,444 square yards.				
Labor	.	.	.	\$836 12
Teaming	.	.	.	1,339 50
Gravel	.	.	.	359 10
Stone	.	.	.	7,486 49
				<u>\$10,021 21</u>

<b>Keyes street</b> , between Forest Hills street and railroad, re-surfaced. Length, 1,920 feet; area, 5,547 square yards.				
Labor	.	.	.	\$177 70
Teaming	.	.	.	428 50
Gravel	.	.	.	51 30
Stone	.	.	.	1,193 00
				<u>\$1,850 50</u>

<b>Ruskin street</b> , between Corey and Weld streets. Length, 545 feet; area, 1,574 square yards.				
Labor	.	.	.	\$73 60
Teaming	.	.	.	209 00
Gravel	.	.	.	45 00
Rock excavating	.	.	.	150 75
Paving	.	.	.	171 85
				<u>\$650 20</u>

<b>Sycamore street</b> , repaired.				
Teaming	.	.	.	\$225 00
Gravel	.	.	.	153 90
				<u>\$378 90</u>
Amount paid out of Street Improve-				
ments, Ward 23	.	.	.	\$133 00
Amount paid out of Paving Division	.	.	245 90	
				<u>\$378 90</u>

**Temple street**, between Ivory and Mt. Vernon streets, resurfaced. Length, 2,300 feet; area, 7,645 square yards.

Labor . . . . .	\$377 20
Teaming . . . . .	526 00
Gravel . . . . .	39 60
Stone . . . . .	508 14
	<hr/>
	\$1,450 94

**Vermont avenue**, entire length, resurfaced. Length, 1,442 feet; area, 4,306 square yards.

Labor . . . . .	\$581 90
Teaming . . . . .	347 50
Stone . . . . .	42 08
	<hr/>
	\$971 48

Amount paid out of Street Improvements, Ward 23 . . . . . \$800 90

Amount paid out of Street Improvements, Ward 22 . . . . .	170 58
	<hr/>
	\$971 48

**Walk Hill street**, between Harvard street and Mt. Hope Cemetery entrance, resurfaced. Length, 1,000 feet; area, 2,889 square yards.

Labor . . . . .	\$239 20
Teaming . . . . .	530 50
Stone . . . . .	502 50
Gravel . . . . .	343 20
	<hr/>
	\$1,615 40

Amount paid out of Street Improvements, Ward 23 . . . . . \$769 70

Amount paid out of Street Improvements, Ward 22 . . . . . 706 50

Amount paid out of Paving Division . . . . . 139 20

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\$1,615 40

**Washington street**, Lagrange street to Dedham line, repaired. Length, 7,415 feet; area, 32,846 square yards.

Labor . . . . .	\$2,796 73
Teaming . . . . .	2,373 13
Gravel . . . . .	554 40
138 feet flagging . . . . .	80 04
Stone . . . . .	5,705 30
Steam roller . . . . .	90 00
Advertising . . . . .	4 50
	<hr/>

*Carried forward* . . . . . \$11,604 10

<i>Brought forward . . . . .</i>	\$11,604 10
Amount paid to James Dolan :	
65 days, paver . . . . .	\$292 50
51 days, rammer . . . . .	127 50
108 days, tender . . . . .	243 00
372.3 feet edgestone set . . . . .	29 78
124.5 square yards block paving . . . . .	31 13
	—
	723 91
	—
	\$12,328 01
Amount paid out of Street Improvements, Ward 23 . . . . .	\$8,787 86
Amount paid out of Street Improvements, Ward 22 . . . . .	3,540 15
	—
	\$12,328 01
<b>Weld street, between Arnold and Ruskin streets, resurfaced.</b>	
Length, 1,600 feet; area, 3,556 square yards.	
Labor . . . . .	\$161 00
Teaming . . . . .	610 50
Stone . . . . .	3,122 97
	—
	\$3,894 47
Amount paid out of Street Improvements, Ward 23 . . . . .	\$1,673 06
Amount paid out of Street Improvements, Ward 22 . . . . .	1,457 55
Amount paid out of Paving Division . . . . .	763 86
	—
	\$3,894 47
Work done by the Sewer Division . . . . .	—
	\$2,341 56

**STREET IMPROVEMENTS, WARD 24.**

<b>Adams street, between Dorchester avenue and O. C. R.R., resurfaced.</b>	
Labor . . . . .	\$64 40
Teaming . . . . .	62 50
Stone . . . . .	235 14
	—
	\$362 04
<b>Ashmont street, between Adams and Wrentham streets, resurfaced, gutters paved, sidewalks gravelled. Length, 990 feet; area, 3,080 square yards.</b>	
Labor . . . . .	\$220 80
Teaming . . . . .	219 00
Gravel . . . . .	93 72
Paving . . . . .	81 55
	—
	\$615 07

**Norfolk street**, between Morton and Walk Hill streets, macadamized, sidewalks constructed. Length, 2,392 feet; area, 7,973 square yards.

Labor . . . . .	\$1,037 71
Teaming . . . . .	1,980 00
Gravel . . . . .	680 30
Stone . . . . .	4,421 86
Drain pipe . . . . .	40 80
Lumber . . . . .	15 81
Advertising . . . . .	6 80
	<hr/>
	\$8,183 28

Amount paid out of Street Improve-

ments, Ward 24 . . . . . \$7,963 92

Amount paid out of Paving Division . . . . . 219 36

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\$8,183 28

**Oakland street**, between River street and N. Y. & N. E. R.R., constructed, excavated, filled, rock-cutting, sub-graded, macadamized. Length 1,290 feet; area 4,300 square yards.

Labor . . . . .	\$1,353 43
Teaming . . . . .	720 50
Gravel . . . . .	274 56
Stone . . . . .	1,104 73
	<hr/>
	\$3,453 22

Work done by the Sewer Division . . . . . \$7,904 94

#### STREET IMPROVEMENTS, WARD 25.

**Bigelow street**, between Faneuil and Brooks streets, sub-graded, gutters paved, crossings laid, sidewalks built. Length, 3,010 feet; area, 9,336 square yards.

Labor . . . . .	\$2,338 33
Teaming . . . . .	2,888 00
Gravel . . . . .	4,586 60
Stone . . . . .	160 05
Flagging . . . . .	39 12
Gutter blocks . . . . .	7 90

Amount paid to James Grant & Co :

163 feet edgestone set . . . . . \$13 04

3,035.8 square yards block paving . . . . . 758 95

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771 99

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\$10,791 99

Amount paid out of Street Improve-

ments, Ward 25 . . . . . \$4,435 63

Amount paid out of Paving Division . . . . . 6,35 366

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\$10,791 99

**Linden street**, between Brighton and Commonwealth avenues, resurfaced, edgestone set, gutters paved. Length, 630 feet; area, 1,820 square yards.

Labor . . . . .	\$103 26
Teaming . . . . .	62 50
Gravel . . . . .	42 50
Stone . . . . .	199 80
	<hr/>
	\$408 06

**Market street**, between Western avenue and Washington street, resurfaced, crossings laid and relaid. Length, 4,963 feet; area, 26,358 square yards.

Labor . . . . .	\$189 75
Teaming . . . . .	419 50
Gravel . . . . .	166 60
Stone . . . . .	326 17
Flagging . . . . .	43 50
Paving . . . . .	23 75
	<hr/>
	\$1,169 27

**Reedsdale street**, between Brighton and Commonwealth avenues, resurfaced. Length, 621 feet; area, 2,070 square yards.

Teaming . . . . .	\$112 50
Gravel . . . . .	47 60
Stone . . . . .	246 45
Steam roller . . . . .	50 00
	<hr/>
	\$456 55

**Rockland street**, between Washington street and Chestnut Hill avenue, macadamized. Length, 680 feet; area, 1,889 square yards.

Labor . . . . .	\$148 35
Teaming . . . . .	174 00
Gravel . . . . .	42 50
Stone . . . . .	435 60
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Amount paid out of Street Improve- ments, Ward 25 . . . . .	\$148 35
Amount paid out of Paving Division . . . . .	652 10
	<hr/>
	\$800 45

**Tremont street**, repaired.

Labor . . . . .	\$80 50
Teaming . . . . .	50 00
Stone . . . . .	28 05
	<hr/>
	\$158 55

Work done by the Sewer Division . . . . .	\$500 00
	<hr/>

## BLUE HILL AND OTHER AVENUES.

## Blue Hill avenue, construction.

Labor, including engineering and inspection . . . . .	\$22,416 42
Teaming . . . . .	4,139 72
290,810 gutter blocks . . . . .	11,486 99
1,751 $\frac{9}{12}$ feet edgestone . . . . .	1,074 93
12 small corners . . . . .	40 20
7 large corners . . . . .	39 20
1,817 $\frac{9}{12}$ feet circular edgestone . . . . .	1,713 09
Gravel . . . . .	223 08
Stone . . . . .	17,486 61
Steam roller . . . . .	313 75
Lumber . . . . .	432 57
Hardware, tools, etc. . . . .	18 85
Fuel . . . . .	37 15
Printing . . . . .	152 34
Advertising . . . . .	248 18
Rent of office . . . . .	204 00
Wharfage on blocks . . . . .	504 60
Shanties, carting and furnishing . . . . .	372 59
Engineer's expenses . . . . .	437 36
Sundries . . . . .	166 91

Amount paid to J. McDonald (Section 1):

3,728.72 cubic yards rock excavation, at \$1.35 . . . . .	\$5,033 77
2,030.84 cubic yards rock hauled, at 25 cents . . . . .	507 71
	_____
	5,541 48
Less amount paid in 1895 . . . . .	459 00
	_____
	5,082 48

Amount paid to Davern &amp; Cronin (Sections 2 and 3):

6,989.36 cubic yards sub-grading, at 44 cents . . . . .	\$3,075 32
5,995.30 square yards Telford base hauled and placed, at 20 cents . . . . .	1,199 06
5,995 square yards macadam hauled and placed, at 6 cents . . . . .	359 70
585.9 square yards granite block gutters furnished and laid, at \$2.50 . . . . .	1,464 75
1,428 cubic yards loam hauled and placed, at 30 cents . . . . .	428 40
627.6 feet edgestone furnished and set, at \$1.75 . . . . .	1,098 30
	_____
Carried forward . . . . .	\$7,625 53
	_____
	\$66,591 02

<i>Brought forward</i>	. . . . .	\$7,625 53	\$66,591 02
4,081.9 square yards gravel sidewalks furnished and laid, at 15 cents	. . . . .	612 29	
45.5 square yards flagging crossings furnished and laid, at \$5.00	. . . . .	227 50	
2,091.8 cubic yards ledge excavation, at \$2.00	. . . . .	4,183 60	
Removing trees, etc.	. . . . .	10 00	
17 covers reset, at \$3.00	. . . . .	51 00	
356 square yards old gutters relaid, at \$1.00	. . . . .	356 00	
2,103.8 feet edgestone (old, reset), at \$1.25	. . . . .	2,629 75	
Extra work as ordered: filling and grading settlement in gas and sewer trenches:			
2 $\frac{7}{8}$ days, foreman, at \$3.00	. . . . .	\$8 31	
29 days labor, at \$1.75	. . . . .	50 75	
2 days double team, at \$5.00	. . . . .	10 00	
1 $\frac{1}{2}$ days single team, at \$3.00	. . . . .	4 50	
Fence at park—stock and labor	. . . . .	5 00	
8 double loads gravel, at \$1.70	. . . . .	13 60	
		\$135 71	
Plus 15 per cent	. . . . .	20 36	
		156 07	
		\$15,851 74	
Credit by 10 $\frac{1}{4}$ days steam road roller, at \$15.00	. . . . .	153 75	
		\$15,697 99	
Less amount paid in 1895	. . . . .	2,927 74	
		12,770 25	
Amount paid to Collins & Ham (parts of Sec- tions 3, 4 and 5):			
12,481.46 cubic yards earth excavation, at 99 cents	. . . . .	\$12,356 65	
54 cubic yards rock excavation, at 50 cents	. . . . .	27 00	
Removing trees, etc.	. . . . .	50 00	
		12,433 65	
Amount paid to Collins & Ham (parts of Sec- tions 3, 4 and 5):			
23,867 cubic yards earth excavation, at 37 $\frac{1}{2}$ cents	. . . . .	\$8,950 13	
<i>Carried forward</i>	. . . . .	\$8,950 13	\$91,794 92

<i>Brought forward . . . . .</i>	\$8,950 13	\$91,794 92
27 cubic yards boulders broken and piled, at 37½ cents . . . . .	10 13	
70 cubic yards extra haul, at 20 cents . . . . .	14 00	
1,594 cubic yards loam rehauled, etc., at 44 cents . . . . .	701 36	
Removing trees, etc. . . . .	100 00	
		\$9,775 62
Less amount paid in 1895 . . . . .	2,709 38	
		7,066 24
Amount paid Collins & Ham (Sections 6 and 7 and parts of 5 and 8):		
9,870.6 cubic yards earth excavation, at 42 cents . . . . .	\$4,145 65	
77 cubic yards stone broken and hauled, at 75 cents . . . . .	57 75	
17,495.5 cubic yards rock excavation, at 90 cents . . . . .	15,745 95	
Removing trees, etc. . . . .	75 00	
		20,024 35
Amount paid to J. D. Gennaro (Sections 9 and 10, and 8 and 11):		
22,605.37 cubic yards earth excavation, at 38 cents . . . . .	\$7,572 80	
221.80 cubic yards rock excavation, at \$1.10 . . . . .	243 98	
Removing trees, etc. . . . .	25 00	
		\$7,841 78
Less amount paid in 1895 . . . . .	939 68	
		6,902 10
Amount paid to H. P. Nawn (Sections 11, 12 and 13):		
31,879 cubic yards earth excavation, at 34 cents . . . . .	\$10,838 86	
105.5 cubic yards rock excavation, at \$1.30 . . . . .	137 15	
Removing trees, etc. . . . .	50 00	
2 days labor, removing trees, at \$1.75; plus 15 per cent . . . . .	4 03	
		\$11,030 04
Less amount paid in 1895 . . . . .	1,097 35	
		9,932 69
Amount paid to Davern & Cronin (Sections 14 and 15):		
3,517 cubic yards earth excavation, at 44 cents . . . . .	\$1,547 48	
<i>Carried forward . . . . .</i>	<i>\$1,547 48</i>	<i>\$135,720 30</i>

<i>Brought forward</i>	. . . . .	\$1,547 48	\$135,720 30
9,822 cubic yards rock excavation, at \$1.00	. . . . .	9,322 00	
Removing trees, etc.	. . . . .	25 00	
236 cubic yards stone, broken and hauled, at 60 cents	. . . . .	141 60	
		_____	11,036 08
Amount paid to D. E. Lynch (between Washington and Seaver streets):			
2,661.7 cubic yards sub-grading, at 40 cents	. . . . .	\$1,064 68	
8,714.5 square yards Telford base hauled and placed, at 31 cents	. . . . .	2,701 50	
9,346.5 square yards macadam hauled and placed, at 15 cents	. . . . .	1,401 98	
1,928 square yards block gutters laid, at 65 cents	. . . . .	1,253 20	
2,492.6 feet edgestone set, at 29 cents	. . . . .	722 85	
2,576 square yards gravel sidewalks furnished and laid, at 30 cents	. . . . .	772 80	
34.8 square yards flagging crossings furnished and laid, at \$4.50	. . . . .	156 60	
20 cubic yards ledge excavation, at \$1.75	. . . . .	35 00	
25 covers reset, at \$3.00.	. . . . .	75 00	
32.8 square yards crossings (old, relaid), at \$1.50	. . . . .	49 20	
		_____	8,232 81
Amount paid to Doherty & Connors (Lauriat avenue to Walk Hill street):			
1,433 cubic yards sub-grading, at 27 cents	. . . . .	\$386 91	
10,564 square yards Telford base, hauled and placed, at 14 cents	. . . . .	1,478 96	
10,663 square yards macadam (unfinished), at 24 cents	. . . . .	2,559 12	
3,102 square yards block gutters, hauled and laid, at 55 cents	. . . . .	1,706 10	
3,123 square yards loam, hauled and placed, at 10 cents	. . . . .	312 30	
260 feet edgestone, hauled and set, at 25 cents	. . . . .	65 00	
3,420 square yards gravel sidewalks, furnished and laid, at 20 cents	. . . . .	684 00	
71.06 square yards flagging crossings, at \$4.35	. . . . .	309 11	
621 cubic yards gravel furnished, at 60 cents	. . . . .	872 60	
		_____	
<i>Carried forward</i>	. . . . .	\$7,874 10	\$154,989 19

<i>Brought forward</i>	. . . . .	\$7,874 10	\$154,989 19
952 feet 6-inch drain furnished and laid, at 51 cents . . . . .	485 52		
26 covers reset, at \$3.00 . . . . .	78 00		
		<hr/>	
		\$8,437 62	
Less 3,762 cubic yards filling taken to Lauriat avenue . . . . .	1,279 08		
		<hr/>	
		7,158 54	
Amount paid to H. P. Nawn (Canter- bury street to Lauriat avenue):			
1,219 cubic yards sub-grading, at 40 cents . . . . .	\$487 60		
11,436.5 square yards Telford base, fur- nished and placed, at 40 cents . . . . .	4,574 60		
600 square yards Telford base hauled and placed, at 15 cents . . . . .	90 00		
11,689 square yards macadam hauled and placed, at 39½ cents . . . . .	4,617 16		
3,719.7 square yards block gutters hauled and placed, at 61 cents . . . . .	2,269 02		
3,826 square yards loam hauled and placed, at 9 cents . . . . .	344 34		
2,388 feet edgestone hauled and set, at 20 cents . . . . .	477 60		
94.3 square yards flagging crossings furnished and laid, at \$4.50 . . . . .	424 35		
50.5 cubic yards gravel, furnished, at \$1.00 . . . . .	50 50		
48 covers reset, at \$3.00 . . . . .	144 00		
		<hr/>	
		13,479 17	
		<hr/>	
		\$175,626 90	
Amount retained from Davern & Cro- nin . . . . .	\$784 90		
Amount retained from D. E. Lynch . . .	1,234 92		
Amount retained from Doherty & Con- ners . . . . .	1,265 64		
Amount retained from H. P. Nawn . . .	2,021 88		
		<hr/>	
		5,307 34	
		<hr/>	
		\$170,319 56	
<b>Columbus avenue, constructing:</b>			
Labor, including engineering and inspection . . . . .	\$27,774 29		
Teaming . . . . .	24,154 29		
134,344 gutter blocks . . . . .	5,606 76		
7,916 $\frac{1}{2}$ feet edgestone . . . . .	4,908 08		
		<hr/>	
<i>Carried forward</i> . . . . .	\$62,443 42		

<i>Brought forward . . . . .</i>	\$62,443 42
967 feet circular edgestone . . . . .	1,257 10
22 small corners . . . . .	73 70
6 large corners . . . . .	33 60
2,401 feet flagging . . . . .	1,392 58
676,000 paving brick . . . . .	6,471 37
Filling . . . . .	14,973 00
Gravel . . . . .	2,494 00
Sand . . . . .	3,048 70
Stone . . . . .	3,709 10
Steam roller . . . . .	30 00
Lumber . . . . .	125 45
Hardware, tools, etc. . . . .	111 50
Fuel . . . . .	1 17
Printing . . . . .	17 50
Advertising . . . . .	223 70
Shanty and furnishing . . . . .	88 55
Repairs at Police Station No. 10 . . . . .	345 67
Repairs at New England Hospital . . . . .	364 07
Tearing down buildings . . . . .	330 00
Engineer's expenses . . . . .	523 69
Sundries . . . . .	84 00
Amount paid to Turnbull & Ryan :	
Furnishing materials and building bulkhead . . . . .	727 00
Amount paid to Neal & Preble :	
Alterations on fence and moving flag-staff, as per estimate ; digging and filling in trench for water-pipe, and repairing paving in yard of George Putnam School . . . . .	\$1,336 00
156 hours labor, at 32 cents . . . . .	49 92
52 hours, mason, at 50 cents . . . . .	26 00
350 paving brick . . . . .	4 90
$\frac{1}{2}$ barrel cement . . . . .	87
1 load sand . . . . .	1 75
	1,419 44
Amount paid to Philip Doherty :	
16,474 feet edgestone set . . . . .	907 60
6,545 square yards brick paving laid . . . . .	850 84
910 square yards flagging crossings . . . . .	163 80
8 square yards gutters paved . . . . .	2 00
76 days labor, at \$1.75 . . . . .	\$133 00
Plus 15 per cent . . . . .	19 95
	152 95
	2,077 19
Amount paid to H. Gore & Co. :	
2,875 asphalt blocks . . . . .	\$316 25
4,528 square yards block paving laid . . . . .	1,132 00
733.2 square yards brick paving laid . . . . .	131 98
<i>Carried forward . . . . .</i>	\$1,580 23 \$102,360 50

<i>Brought forward . . . . .</i>	\$1,580 23	\$102,360 50
1,333 feet edgestone set . . . . .	106 64	
209 square yards flagging crossings laid, . . . . .	52 25	
		1,739 12

Amount paid to Joseph D. Gennaro :

11,634 cubic yards earth excavation, at 32 cents . . . . .	\$3,722 88
2,540 cubic yards rock excavation, at \$1.29 . . . . .	3,276 60
Removing trees, etc. . . . .	25 00
	7,024 48

Amount paid to Neil McBride :

10,986.7 cubic yards gravel filling, at 99 cents . . . . .	10,876 83
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Amount paid to Collins & Ham :

5,400 cubic yards sub-grading, at 45 cents . . . . .	\$2,430 00
7,618 square yards Telford base hauled and placed, at 15½ cents . . . . .	1,161 75
7,816 square yards macadam hauled and placed, at 5½ cents . . . . .	429 88
1,330 square yards block gutters laid, at 30 cents . . . . .	399 00
3,555 feet edgestone set, at 14 cents . . . . .	497 70
3,526 square yards brick sidewalks laid, at 53 cents . . . . .	1,868 78
19 square yards gravel sidewalks fur- nished and laid, at 30 cents . . . . .	5 70
260.8 square yards flagging crossings, furnished and laid, at \$5.25 . . . . .	1,369 20
2½ cubic yards ledge excavation, at \$1.75, 204 cubic yards gravel furnished, at 50 cents . . . . .	4 08
102 00	
Removing trees, etc. . . . .	325 00
16 covers reset, at \$3.00 . . . . .	48 00
80 square yards gutters (old, relaid), at 30 cents . . . . .	24 00
	8,665 09

Amount paid to Barber Asphalt Paving Co. :

20,433.6 square yards Trinidad lake asphalt pavement with concrete base and binder, at \$2.90 . . . . .	\$59,257 44
866.6 cubic yards concrete base (extra depth), at \$5.00 . . . . .	4,333 00
Extra work making extra excavations and truing sub-grade of roadways:	
80 hours, foreman, at 50 cents, . . . . .	\$40 00
<i>Carried forward . . . . .</i>	\$40 00
	\$63,590 44
	\$130,666 02

*Brought forward* . . . \$40 00 \$63,590 44 \$130,666 02  
 1,205½ hours labor, at 20 cents, 241 10  
 18 hours, water boy, at 10 cents, 1 80

	\$282 90	
Add 15 per cent	42 44	
	<hr/>	
	325 34	
	<hr/>	
	63,915 78	

Amount paid to Boston Asphalt Co.:  
 5,323 square yards Sicilian rock asphalt with Ameri-  
 can cement concrete base, at \$2.90 . . . . . 15,436 70

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Amount retained from Collins & Ham . \$433 25  
 Amount retained from Barber Asphalt  
 Paving Co. . . . . 3,388 26  
 Amount retained from Boston Asphalt  
 Co. . . . . 771 84

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**Commonwealth avenue, construction.**  
 Labor, including engineering and inspection . . . . . \$5,815 47  
 Teaming . . . . . 1,937 50  
 191,693 gutter blocks . . . . . 7,571 88  
 Gravel . . . . . 52 70  
 Advertising . . . . . 138 83  
 Fuel . . . . . 8 08  
 Printing . . . . . 45 49  
 Stone . . . . . 5,251 92  
 Steam roller . . . . . 300 00  
 Engineer's expense . . . . . 128 56  
 Sundries . . . . . 11 20

Amount paid to H. P. Nawn:  
 198.2 cubic yards rock excavation, at \$1.75 . . . . . 346 85

Amount paid to Neil McBride:  
 10,300 cubic yards earth excavation, at  
 33 cents . . . . . \$3,399 00  
 6,365 cubic yards rock excavation, at  
 \$1.29 . . . . . 8,210 85  
 Removing trees, etc. . . . . 50 00  
 896.3 tons stone, broken and hauled, at  
 65 cents . . . . . 582 60

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Less payments made in 1895 . . . . . \$12,242 45  
 . . . . . 755 23

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*Carried forward* . . . . . \$33,095 70

<i>Brought forward . . . . .</i>	\$33,095 70
Amount paid to John A. Whittemore's Sons:	
4,700 cubic yards sub-grading, at 25 cents . . . . .	\$1,175 00
22,218 square yards Telford base placed, etc., at 15 cents . . . . .	3,332 70
22,750 square yards macadam hauled and placed, at 15 cents . . . . .	3,412 50
6,650 square yards block gutters hauled and laid, at 69 cents . . . . .	4,588 50
13,208 square yards loam, hauled and placed, at 9 cents . . . . .	1,188 72
7,250 square yards gravel sidewalks, furnished and laid, at 18 cents . . . . .	1,305 00
340 cubic yards ledge excavation, at \$1.00 . . . . .	340 00
955 cubic yards loam hauled and stored at 20 cents . . . . .	191 00
3,135 tons stone, broken and hauled to crusher, at 30 cents . . . . .	940 50
	—
	16,473 92
Amount paid to John A. Whittemore's Sons:	
621 cubic yards wall, at \$12.50 . . . . .	\$1,552 50
20 cubic yards ledge excavation, at \$1.00 . . . . .	20 00
279 cubic yards earth excavation, at 30 cents . . . . .	83 70
	—
	1,656 20
	—
Work done by the Bridge Division . . . . .	\$51,225 82
	874 00
	—
Amount retained from John A. Whittemore's Sons,	\$52,099 82
	2,471 09
	—
	\$49,628 73
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<b>Huntington avenue, construction.</b>	
Labor, including engineering and inspection . . . . .	\$44,703 75
Teaming . . . . .	33,760 81
261,849 gutter blocks . . . . .	10,590 90
20,674 $\frac{1}{2}$ feet edgestone . . . . .	12,818 33
10,193 feet special edgestone . . . . .	3,975 27
1,146 $\frac{5}{12}$ feet circular edgestone . . . . .	1,490 38
106 $\frac{1}{12}$ feet special circular edgestone . . . . .	283 11
27 small corners . . . . .	92 95
41 large corners . . . . .	228 60
	—
<i>Carried forward . . . . .</i>	\$107,944 10

<i>Brought forward</i>	.	.	.	.	\$107,944	10
239 feet flagging	.	.	.	.	139	40
914 crossing blocks	.	.	.	.	457	00
526,960 paving brick	.	.	.	.	5,104	60
Gravel	.	.	.	.	5,335	67
Filling	.	.	.	.	5,606	00
Loam and sods	.	.	.	.	294	54
Sand	.	.	.	.	3,730	00
Cement	.	.	.	.	33	00
Stone	.	.	.	.	32,104	85
Steam roller	.	.	.	.	880	00
Lumber	.	.	.	.	450	82
Fuel	.	.	.	.	14	66
Advertising	.	.	.	.	235	69
Shanty, and furnishing same	.	.	.	.	91	93
Printing	.	.	.	.	31	59
Hardware, tools, etc.	.	.	.	.	345	77
Engineer's expenses	.	.	.	.	250	65
Sundries	.	.	.	.	36	92
Amount paid to William Scollans:						
9,746 cubic yards gravel filling, at 79 $\frac{3}{4}$ cents	.	.	.	\$7,772	44	
Less amount paid in 1895	.	.	.	4,067	25	
						3,705 19
Amount paid to Metropolitan Construction Co.:						
4,396 cubic yards filling, at 65 cents	.	.	.			2,857 40
Amount paid to Donovan & Brock:						
Labor and stock, moving fence and wall at Martin School, and taking down, moving and erecting new frame and step block for flag-pole	.	.	.			2,102 63
Amount paid to Jas. Grant & Co., paving at intersecting streets:						
781.8 feet edgestone set	.	.	.	\$117	27	
284.9 square yards block paving	.	.	.	99	72	
1,376.5 square yards brick paving	.	.	.	316	60	
342.2 square yards fence curb set	.	.	.	68	44	
						602 03
Amount paid to Boston Asphalt Co.:						
16,393.8 square yards Sicilian rock asphalt with American cement concrete base, at \$2 90	.	.	.	\$47,542	02	
21.7 cubic yards ex-concrete base, at \$5.00	.	.	.	108	50	
						47,650 52
Amount paid to Chas. E. Barnes:						
2,100.9 feet edgestone set	.	.	.	\$205	27	
670 square yards brick paving	.	.	.	120	60	
945.6 square yards gutter paving	.	.	.	253	45	
499.5 square yards crossings laid	.	.	.	124	87	
<i>Carried forward</i>	.	.	.	\$704	19	\$220,004 96

<i>Brought forward</i>	.	.	\$704 19	\$220,004 96
45 $\frac{4}{9}$ days, foreman	.	.	\$272 66	
100 $\frac{7}{9}$ days, pavers	.	.	503 87	
45 $\frac{5}{9}$ days, helper	.	.	113 87	
285 $\frac{1}{9}$ days, labor	.	.	570 22	
			-----	
			\$1,460 62	
Plus 15 per cent	.	.	219 09	
			-----	
			1,679 71	
			-----	
			2,383 90	

## Amount paid to J. B. O'Rourke:

162 square yards block paving	.	.	\$32 40	
7,077 feet edgestone set	.	.	424 62	
4,281 square yards brick paving	.	.	599 34	
160 square yards flagging crossings	.	.	32 00	
1,219 square yards gutters paved	.	.	398 15	
3,106 feet edgestone set	.	.	419 07	
2,614 square yards brick paving	.	.	538 95	
70 square yards flagging crossings	.	.	17 50	
2,609 feet coping reset	.	.	521 80	
62 coal holes reset	.	.	186 00	
			-----	
			3,169 83	

## Amount paid to Doherty &amp; Connors:

12,053 cubic yards sub-grading, at 39 cents	.	.	\$4,700 67	
17,144 square yards Telford base hauled and placed, at 21 cents	.	.	3,600 24	
17,822 square yards macadam hauled and placed, at 25 cents	.	.	4,455 50	
3,235 square yards gutters laid, at 45 cents	.	.	1,455 75	
10,095 feet edgestone set, at 23 cents	.	.	2,321 85	
9,172 square yards brick sidewalks laid, at 44 cents	.	.	4,035 68	
393 square yards gravel sidewalks furnished and laid, at 25 cents	.	.	98 25	
385.6 square yards flagging crossings furnished and laid, at \$4.50	.	.	1,735 20	
7 cubic yards ledge excavation, at \$1.75	.	.	12 25	
Removing trees, stumps, etc.	.	.	255 00	
33 covers reset, at \$3.00	.	.	99 00	
158 square yards crossings (old, relaid), at \$1.50	.	.	237 00	
Extra work as ordered:				
19 double loads loam furnished and placed, at 87 cents	.	.	\$16 53	

<i>Carried forward</i>	.	\$16 53	\$23,006 39	\$225,558 69
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## STREET DEPARTMENT — PAVING DIVISION. 245

<i>Brought forward</i>	. . . . .	\$16 53	\$23,006 39	\$225,558 69
45 days labor, culling bricks, at \$1.75	. . . . .	78 75		
			<u>\$95 28</u>	
Plus 15 per cent	. . . . .	14 29		
			<u>109 57</u>	
				<u>23,115 96</u>

## Amount paid to H. Gore &amp; Co.:

7,758 cubic yards sub-grading, at 25 cents	. . . . .	1,939 50		
22,237 square yards Telford base hauled and placed, at 24½ cents	. . . . .	5,448 07		
22,641 square yards macadam hauled and placed, at 19½ cents	. . . . .	4,415 00		
4,182 square yards block gutters laid, at 49 cents	. . . . .	2,049 18		
8,706 feet edgestone set, at 17 cents	. . . . .	1,480 02		
7,307 feet edgestone set, at 15 cents	. . . . .	1,096 05		
833 square yards brick sidewalks laid, at 42 cents	. . . . .	349 86		
9,159 square yards gravel sidewalks furnished and laid, at 30 cents	. . . . .	2,747 70		
718 square yards flagging crossings furnished and laid, at \$4.50	. . . . .	3,231 00		
21 cubic yards gravel furnished, at 75 cents	. . . . .	15 75		

## Extra work rebuilding catch-basins and manholes:

43½ days, mason, at \$4.50	. . . . .	\$197 25		
43½ days, mason tender, at \$2.25	. . . . .	98 63		
21½ days labor, at \$1.75	. . . . .	36 94		
33½ barrels American cement, at \$1.10	. . . . .	36 85		
9,255 bricks, at \$9.00	. . . . .	83 30		
6 double loads sand, at \$1.75	. . . . .	10 50		

## Resetting and rejoining edgestone:

22½ days, stone cutter, at \$4.00	. . . . .	89 33		
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## Resurfacing street, regrading water-works trench, and extra excavations:

4 7½ days, foreman, at \$5.00	. . . . .	24 17		
37½ days labor, at \$1.75	. . . . .	65 14		
4½ days, double team, at \$5.00	. . . . .	20 55		

## Transplanting:

1 day, foreman	. . . . .	5 00		
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*Carried forward* . . . . . \$667 66 \$22,772 13 \$248,674 65

<i>Brought forward . . .</i>	\$667 66	\$22,772 13	\$248,674 65
5 days labor, at \$1.75 . . .	8 75		
$\frac{2}{9}$ day double team, at \$5.00 . . .	1 11		
2 double loads loam, at \$1.75 . . .	3 50		
Hauling crushed stone :			
64 $\frac{5}{9}$ days, double team, at \$5.00 . . .	320 28		
1 $\frac{1}{3}$ days, single team, at \$3.00 . . .	5 00		
Resetting edgestone, resur-			
facing sidewalks and			
loaming :			
5 $\frac{5}{9}$ days, foreman, at \$5.00 . . .	25 28		
26 $\frac{6}{9}$ days labor, at \$1.75 . . .	46 67		
$\frac{5}{9}$ day, double team, at \$5.00 . . .	2 78		
45 double loads loam, at \$1.75 . . .	78 75		
6 single loads loam, at 87 $\frac{1}{2}$			
cents . . . . .	5 25		
Taking down fence and cut-			
ting through fence at			
Chutes :			
6 $\frac{5}{9}$ days, foreman, at \$5.00 . . .	3 61		
9 $\frac{8}{9}$ days labor, at \$1.75 . . .	17 40		
Breaking Telford base,			
38 days labor, at \$1.75 . . .	66 50		
Rolling at place where scales			
were located $\frac{8}{9}$ day, steam			
roller, at \$15.00 . . . .	13 33		
	\$1,265 87		
Plus 15 per cent . . . .	189 88		
	1,455 75		
		\$24,227 88	
		\$272,902 53	
Work done by the Bridge Division . . . .		9,592 68	
		\$282,495 21	
Amount retained from Boston Asphalt			
Co. . . . .	\$2,382 53		
Amount retained from Doherty &			
Connors . . . . .	1,155 80		
Amount retained from H. Gore & Co. .	1,211 39		
	4,749 72		
		\$277,745 49	

*SUMMARY OF EXPENDITURES UNDER  
SPECIAL APPROPRIATIONS.*

TOTAL AMOUNT EXPENDED.

Bennington and Walley streets . . . . .	\$13,469	88
Centre street (Dorchester) . . . . .	867	10
Columbus avenue . . . . .	7,100	00
Commonwealth avenue . . . . .	130,471	33
Congress and L streets . . . . .	7,608	17
Eleanor and Ridgemont streets . . . . .	110	85
Elmira street . . . . .	1,696	30
Franklin street . . . . .	99	48
Hanover street . . . . .	5,049	44
Leicester street . . . . .	2,488	40
McLellan street . . . . .	4,056	84
Orleans street . . . . .	3,146	73
Quincy street . . . . .	8,419	18
Saratoga street . . . . .	2,022	20
Sydney street . . . . .	436	40
Talbot avenue . . . . .	2,171	62
Tremont street . . . . .	9,501	26
Wall street . . . . .	5,580	26
Street Improvements, Old Wards.		
Street Improvements, Wards 1 and 2 :		
Bennington street . . . . .	250	00
Bremen street . . . . .	5,558	82
Saratoga street . . . . .	27,854	80
Sumner street . . . . .	370	13
Walley street . . . . .	110	82
Bridges . . . . .	417	66
Street Improvements, Ward 3 :		
Corey street . . . . .	68	82
Decatur street . . . . .	6,179	76
Prospect street . . . . .	3,510	93
Tremont street . . . . .	4,421	00
Sewers . . . . .	615	24
Street Improvements, Ward 4 :		
Essex street . . . . .	1,028	13
Medford street . . . . .	1,715	38
Street Improvements, Ward 5 :		
Main street . . . . .	23,877	14
Washington street . . . . .	371	50
Street Improvements, Wards 9 and 10 :		
Chestnut street . . . . .	7,509	05
Parkman street . . . . .	592	95
<i>Carried forward</i> . . . . .	\$288,747	57

<i>Brought forward</i>	.	.	.	.	.	\$288,747	57
<b>Street Improvements, Ward 12:</b>							
Beach street	.	.	.	.	.	8,598	82
Chauncy street	.	.	.	.	.	10,777	38
Essex street	.	.	.	.	.	564	21
Harvard street	.	.	.	.	.	4,233	73
Pine street	.	.	.	.	.	3,877	36
Whitmore street	.	.	.	.	.	62	70
<b>Street Improvements, Ward 13:</b>							
A street	.	.	.	.	.	293	25
C street	.	.	.	.	.	1,216	69
D street	.	.	.	.	.	6,708	60
Dorchester avenue	.	.	.	.	.	21,512	16
Dove street	.	.	.	.	.	2,581	14
Sewers	.	.	.	.	.	241	60
<b>Street Improvements, Wards 14 and 15:</b>							
Bellflower street	.	.	.	.	.	5,032	01
East Eighth street	.	.	.	.	.	1,536	46
East Sixth street	.	.	.	.	.	9,085	12
K street	.	.	.	.	.	7,111	86
Rawson street	.	.	.	.	.	2,829	67
Swett street	.	.	.	.	.	9,178	89
Vale street	.	.	.	.	.	177	50
Sewers	.	.	.	.	.	5,310	32
<b>Street Improvements, Ward 16:</b>							
Compton street	.	.	.	.	.	1,282	02
<b>Street Improvements, Wards 17 and 18:</b>							
Albany street	.	.	.	.	.	2,498	48
East Lenox street	.	.	.	.	.	329	52
Fabin street	.	.	.	.	.	92	27
Fellows street	.	.	.	.	.	3,175	83
Flagg street	.	.	.	.	.	1,945	80
Harrison avenue	.	.	.	.	.	245	39
Pembroke street	.	.	.	.	.	693	24
West Canton street	.	.	.	.	.	131	00
<b>Street Improvements, Wards 19 and 22:</b>							
Bay State road	.	.	.	.	.	241	55
Beacon street	.	.	.	.	.	6,946	08
Boylston street	.	.	.	.	.	86	80
Calumet street	.	.	.	.	.	360	00
Lawn street	.	.	.	.	.	325	60
Marlborough street	.	.	.	.	.	2,634	43
Parker street	.	.	.	.	.	55	80
Roxbury street	.	.	.	.	.	13,892	04
Westland avenue	.	.	.	.	.	1,367	77
<b>Street Improvements, Ward 20:</b>							
Newcomb street	.	.	.	.	.	2,521	07
Quincy street	.	.	.	.	.	1,285	35
<i>Carried forward</i>	.	.	.	.	.	\$429,287	08

<i>Brought forward</i>	.	.	.	.	\$429,287	08
Shirley street	.	.	.	.	3,236	00
Sewers	.	.	.	.	301	51
Street Improvements, Ward 24:						
Alban street	.	.	.	.	3,201	54
Bicknell street	.	.	.	.	212	20
Bradshaw street	.	.	.	.	1,974	08
Morton street	.	.	.	.	318	40
Sewers	.	.	.	.	1,824	38
Street Improvements, Ward 25:						
Washington street	.	.	.	.	13,544	70
Western avenue	.	.	.	.	984	63
Winship street	.	.	.	.	1,495	63
Bridges	.	.	.	.	455	74
Street Improvements, New Wards.						
Street Improvements, Ward 1:						
Blackinton and Leyden streets	.	.	.	.	941	73
Byron street	.	.	.	.	2,492	55
Chelsea street	.	.	.	.	143	52
Cowper street	.	.	.	.	73	18
Shelby street	.	.	.	.	33	38
Wordsworth street	.	.	.	.	559	95
Sewers	.	.	.	.	1,653	97
Street Improvements, Ward 2:						
Havre street	.	.	.	.	2,275	15
Haynes street	.	.	.	.	2,581	76
Marion and Bremen streets	.	.	.	.	1,906	36
Maverick street	.	.	.	.	414	10
Sumner street	.	.	.	.	10,451	73
Webster street	.	.	.	.	9,917	22
Bridges	.	.	.	.	300	00
Sewers	.	.	.	.	869	67
Street Improvements, Ward 3:						
Ferrin street	.	.	.	.	4,882	38
Sewer Division	.	.	.	.	556	29
Street Improvements, Ward 4:						
Alford street	.	.	.	.	3,445	08
Beach street	.	.	.	.	227	11
Walker street	.	.	.	.	3,936	36
Sewers	.	.	.	.	2,821	71
Street Improvements, Ward 5:						
City square	.	.	.	.	227	54
Park street	.	.	.	.	595	80
Stacey street	.	.	.	.	1,769	57
Union street	.	.	.	.	544	21
Warren avenue	.	.	.	.	1,045	30
Warren street	.	.	.	.	483	74
Sewers	.	.	.	.	678	53
<i>Carried forward</i>	.	.	.	.	\$512,663	78

<i>Brought forward</i>	.	.	.	.	\$512,663	78
<b>Street Improvements, Ward 6:</b>						
Batterymarch street	.	.	.	.	1,878	61
City Hall avenue	.	.	.	.	1,206	47
Devonshire street	.	.	.	.	6,107	21
Garden Court street	.	.	.	.	1,700	63
North street and North square	.	.	.	.	3,613	18
North Margin street	.	.	.	.	173	51
North Market street	.	.	.	.	509	65
Prince street	.	.	.	.	1,360	88
Stillman street	.	.	.	.	2,481	57
Tileston street	.	.	.	.	19	54
Water street	.	.	.	.	3,661	37
Sewers	.	.	.	.	289	47
<b>Street Improvements, Ward 7:</b>						
Corning street	.	.	.	.	1,305	27
Edinboro' street	.	.	.	.	136	17
Milk street	.	.	.	.	9,602	67
Ohio street	.	.	.	.	1,314	32
West street	.	.	.	.	147	26
Winter street	.	.	.	.	6,995	90
Sewers	.	.	.	.	879	77
<b>Street Improvements, Ward 8:</b>						
Ashland street	.	.	.	.	2,231	01
Barton street	.	.	.	.	96	41
Cotting street	.	.	.	.	2,192	49
Lowell street	.	.	.	.	18,474	32
Milton street	.	.	.	.	324	30
Sewers	.	.	.	.	382	05
<b>Street Improvements, Ward 9:</b>						
Acton street	.	.	.	.	797	52
East Dedham street	.	.	.	.	4,030	13
Hamburg street	.	.	.	.	2,692	57
Laconia street	.	.	.	.	4,919	69
Meander street	.	.	.	.	2,057	83
Mystic street	.	.	.	.	4,308	34
Norwich street	.	.	.	.	1,775	07
Taylor street	.	.	.	.	750	33
Union Park street	.	.	.	.	1,492	48
Sewers	.	.	.	.	912	21
<b>Street Improvements, Ward 10:</b>						
Boylston and Exeter streets	.	.	.	.	11,982	05
Columbus avenue	.	.	.	.	719	00
Dartmouth street	.	.	.	.	613	06
Holyoke street	.	.	.	.	1,682	89
St. Botolph street	.	.	.	.	16,326	60
Yarmouth street	.	.	.	.	935	45
Sewers	.	.	.	.	1,024	82
<i>Carried forward</i>	.	.	.	.	\$636,767	85

<i>Brought forward . . . . .</i>		\$636,767	85
Street Improvements, Ward 11:			
Arlington street . . . . .		10,512	92
Berkeley street . . . . .		4,061	18
Brimmer street . . . . .		490	80
Brookline avenue . . . . .		440	86
Charles street . . . . .		25	49
Mt. Vernon street . . . . .		1,512	20
Pinekney street . . . . .		106	50
Sewers . . . . .		752	37
Street Improvements, Ward 12:			
East Brookline street . . . . .		3,582	94
Massachusetts avenue . . . . .		1,047	24
Reed street . . . . .		2,417	85
West Brookline street . . . . .		7,566	23
Sewer Division . . . . .		408	90
Street Improvements, Ward 13:			
Athens street . . . . .		121	27
Bridges . . . . .		3,582	15
Street Improvements, Ward 14:			
L street . . . . .		6,605	46
Sewers . . . . .		797	14
Street Improvements, Ward 15:			
East Fifth street . . . . .		886	88
East Fourth street . . . . .		759	32
G street . . . . .		1,750	94
Old Harbor street . . . . .		1,418	51
Telegraph street . . . . .		3,258	24
Thomas Park . . . . .		861	55
Street Improvements, Ward 16:			
East Cottage street . . . . .		5,489	00
Dean street . . . . .		2,972	13
Fairbury street . . . . .		555	64
Leyland street . . . . .		2,276	73
Monadnock street . . . . .		488	14
Sewers . . . . .		1,716	59
Street Improvements, Ward 17:			
Eustis street . . . . .		9,636	45
Island street . . . . .		2,216	13
Magazine street . . . . .		2,181	93
Marshfield street . . . . .		1,009	71
Massachusetts avenue . . . . .		9,456	77
Pontine street . . . . .		323	87
Sewers . . . . .		1,609	32
Street Improvements, Ward 18:			
Linden Park street . . . . .		4,347	41
Tremont street . . . . .		488	65
Washington street . . . . .		4,857	21
Sewers . . . . .		920	49
<i>Carried forward . . . . .</i>		\$740,280	96

<i>Brought forward</i>	.	.	.	.	\$740,280	96
<i>Street Improvements, Ward 19:</i>						
Smith street	.	.	.	.	7,812	62
Wait street	.	.	.	.	109	00
Sewers	.	.	.	.	1,500	20
<i>Street Improvements, Ward 20:</i>						
Blue Hill avenue	.	.	.	.	1,302	13
Charles street	.	.	.	.	2,986	68
Faulkner street	.	.	.	.	1,015	42
Freeport street	.	.	.	.	4,207	46
Geneva avenue	.	.	.	.	3,962	57
Hartland street	.	.	.	.	794	34
Mayfield street	.	.	.	.	1,147	11
Romsey street	.	.	.	.	2,698	15
Sagamore street	.	.	.	.	550	48
Salecombe street	.	.	.	.	2,284	35
School street	.	.	.	.	382	52
Washington street	.	.	.	.	7,123	74
Bridges	.	.	.	.	43	72
Sewers	.	.	.	.	1,202	14
<i>Street Improvements, Ward 21:</i>						
Crawford street	.	.	.	.	6,641	73
Holborn street	.	.	.	.	982	30
Howland street	.	.	.	.	4,007	56
Maywood street	.	.	.	.	318	73
Ruthven street	.	.	.	.	2,104	89
Sherman street	.	.	.	.	1,809	30
Walnut avenue	.	.	.	.	4,011	49
Sewers	.	.	.	.	1,262	36
<i>Street Improvements, Ward 22:</i>						
Bickford street	.	.	.	.	600	84
Boylston street	.	.	.	.	1,214	95
Bromley park	.	.	.	.	149	25
Bromley street	.	.	.	.	194	50
Burroughs street	.	.	.	.	88	75
Creighton street	.	.	.	.	4,770	38
Green street	.	.	.	.	142	50
Lamartine street	.	.	.	.	3,931	54
Sewers	.	.	.	.	811	96
<i>Street Improvements, Ward 23:</i>						
Ashfield street	.	.	.	.	513	00
Baker street	.	.	.	.	1,764	11
Canterbury street	.	.	.	.	8,253	25
Centre street	.	.	.	.	10,543	57
Conway street	.	.	.	.	424	75
Corey street	.	.	.	.	1,807	84
Fairview street	.	.	.	.	556	45
Hastings street	.	.	.	.	3,406	67
<i>Carried forward</i>	.	.	.	.	\$839,716	26

SUMMARY OF EXPENDITURES FOR BLUE  
HILL AND OTHER AVENUES.

Blue Hill avenue . . . . .	\$170,319	56
Columbus avenue . . . . .	205,425	15
Commonwealth avenue . . . . .	49,628	73
Huntington avenue . . . . .	277,745	49
	<b>\$703,118</b>	<b>93</b>

*SUMMARY OF EXPENDITURES—LAYING OUT  
AND CONSTRUCTION OF HIGHWAYS.*

TOTAL AMOUNT EXPENDED.

Abbottsford street . . . . .	\$4,777 42
Audubon road . . . . .	9,299 55
Bay State road . . . . .	7,722 79
Boylston street . . . . .	11,516 65
Brighton avenue . . . . .	51,243 19
Clinton street . . . . .	6,942 71
Fenelon street . . . . .	1,915 66
Geneva avenue . . . . .	17,249 19
Granby street . . . . .	4,737 01
Greenbrier street . . . . .	5,317 10
Harvard avenue . . . . .	2,498 39
Harvard street . . . . .	1,224 39
Ivy street . . . . .	366 12
Josephine street . . . . .	3,210 79
Kenmore street . . . . .	48 71
Lauriat avenue . . . . .	16,577 13
Morse street . . . . .	2,086 09
Newbury street . . . . .	66 70
Norway street . . . . .	152 86
Norway street . . . . .	1,308 01
Parker street . . . . .	1,192 51
Peterborough street . . . . .	5,869 98
Ruggles street . . . . .	5,017 34
St. Alphonsus street . . . . .	7,276 14
St. Germain street . . . . .	251 92
Sherborn street . . . . .	210 71
Turner street . . . . .	1,834 49
Vancouver street . . . . .	1,643 12
Wilder street . . . . .	3,405 21
	<hr/>
	\$174,961 88

*LAYING OUT AND CONSTRUCTION OF HIGHWAYS.*

Abbotsford street, between Walnut avenue and Harold street.	
Labor . . . . .	\$428 34
1,184 $\frac{9}{16}$ feet edgestone . . . . .	734 54
38 $\frac{1}{2}$ feet circular edgestone . . . . .	49 49
2 small corners . . . . .	6 70
11,600 large gutter blocks . . . . .	458 20
Stone . . . . .	1,144 61
	<hr/>
Carried forward . . . . .	\$2,821 88

STREET DEPARTMENT — PAVING DIVISION. 255

Brought forward . . . . .	\$2,821 88
Steam roller . . . . .	123 50
Catch basin stone . . . . .	16 00
Advertising . . . . .	45 21
Amount paid to Quimby & Ferguson:	
997 cubic yards sub-grading, at 38 cents,	\$378 86
1,357 square yards macadam hauled and placed, at 26 cents . . . . .	352 82
427 square yards granite block gutters hauled and laid, at 83 cents . . . . .	354 41
1,233 feet edgestone hauled and set, at 24 cents . . . . .	295 92
818 square yards gravel sidewalks fur- nished and laid, at 26 cents . . . . .	212 68
27.3 square yards flagging crossings fur- nished and laid, at \$4.25 . . . . .	116 03
121.4 cubic yards ledge excavation, at \$2.00 . . . . .	242 80
4 covers reset, at \$3.00 . . . . .	12 00
Extra work lowering catch-basins:	
22 hours, mason, at 42 cents	\$9 24
22 hours, tender, at 20 cents	4 40
1 hour, stonecutter . . . . .	50
2 barrels cement, at \$1.50 . . . . .	3 00
2 single loads sand, at \$1.00 . . . . .	2 00
	\$19 14
Plus 15 per cent . . . . .	2 87
	22 01
	\$1,987 53
Credited by 9½ days steam roller, at \$13	123 50
	1,864 03
Amount retained from Quimby & Ferguson . . . . .	\$4,870 62
	93 20
	\$4,777 42

**Audubon road, Beacon street across Ivy street.**

Labor . . . . .	\$422 15
Stone . . . . .	1,878 80
Advertising . . . . .	136 75
13,000 gutter blocks . . . . .	513 50
421 $\frac{5}{12}$ feet straight edgestone . . . . .	261 28
412 $\frac{8}{12}$ feet circular edgestone . . . . .	536 47
Sundries . . . . .	27 46

*Carried forward . . . . .* \$3,776 41

<i>Brought forward . . . . .</i>	\$3,776 41
Amount paid to William Scollans:	
568 cubic yards sub-grading, at 25 cents,	\$142 00
2,669 square yards Telford base hauled and placed, at 37 cents . . . . .	987 53
3,330 square yards macadam hauled and placed, at 31 cents . . . . .	1,032 30
438 square yards block gutters hauled and laid, at 85 cents . . . . .	372 30
385 square yards loam furnished and placed, at 40 cents . . . . .	154 00
877 feet edgestone hauled and set, at 30 cents . . . . .	263 10
953 square yards brick paving furnished and laid, at 95 cents . . . . .	905 35
1,493 square yards flagging crossings furnished and laid, at \$4.25 . . . . .	634 53
1,539 cubic yards gravel furnished, at 75 cents . . . . .	1,154 25
7 covers reset, at \$3.00 . . . . .	21 00
2.4 square yards brick sidewalks (old, re-laid), at 55 cents . . . . .	1 32
Extra work as ordered:	
7 days, stonecutter, at \$3.50 . . . . .	\$24 50
78 days labor, at \$1.75 . . . . .	136 50
	<hr/>
	\$161 00
Plus 15 per cent . . . . .	24 15
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	185 15
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	\$5,852 83
Credit by 3 days steam road roller, at \$13.00 . . . . .	39 00
	<hr/>
	5,813 88
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Less amount retained from William Scollans . . . . .	\$9,590 24
	290 69
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	\$9,299 55
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**Bay State road, between Sherborn and Granby streets:**

Labor . . . . .	\$437 88
Stone . . . . .	2,590 35
Advertising . . . . .	43 50
1,499 $\frac{8}{12}$ feet edgestone . . . . .	929 80
62 $\frac{1}{2}$ feet circular edgestone . . . . .	81 68
Sundries . . . . .	8 51
	<hr/>
<i>Carried forward . . . . .</i>	\$4,091 22

<i>Brought forward . . . . .</i>	\$4,091 22
Amount paid to Quimby & Ferguson:	
192.5 cubic yards sub-grading, at 38 cents . . . . .	\$73 15
2,586 square yards macadam hauled and placed, at 27 cents . . . . .	698 22
517 square yards granite block gutters furnished and laid, at \$2.10 . . . . .	1,085 70
1,582 feet edgestone hauled and set, at 22 cents . . . . .	348 04
1,898 square yards gravel sidewalks furnished and laid, at 27 cents . . . . .	512 46
1,502 cubic yards gravel furnished, at 78 cents . . . . .	1,171 56
11 covers reset, at \$3.00 . . . . .	33 00
11 square yards gutters (old, relaid), at 60 cents . . . . .	6 60
Extra work repaving gutters and brick sidewalks:	
19 hours, paver, at 40 cents . . . . .	\$7 60
19 hours, tender, at 20 cents . . . . .	3 80
9 hours labor, at 17 cents . . . . .	1 53
3 double loads sand, at \$1.57, . . . . .	4 71
	<hr/>
	\$17 64
Plus 15 per cent . . . . .	2 65
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	20 29
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Credit by 20 days (clause M. of contract),	\$3,949 02
at \$10.00 . . . . .	200 00
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	3,749 02
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Less amount retained from Quimby & Ferguson,	\$7,840 24
	117 45
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	\$7,722 79

Boylston street, between Boylston road and Brookline avenue:	
Labor . . . . .	\$1,511 95
Advertising . . . . .	86 98
42,650 gutter blocks . . . . .	1,684 68
4,842 $\frac{9}{12}$ feet edgestone . . . . .	2,737 53
214 $\frac{1}{2}$ feet circular edgestone . . . . .	279 39
Teaming . . . . .	955 32
Fuel . . . . .	2 33
	<hr/>
<i>Carried forward . . . . .</i>	\$7,258 18

<i>Brought forward . . . . .</i>		\$7,258 18
Amount paid to Neil McBride:		
2,187 cubic yards sub-grading, at 20 cents . . . . .	\$437 40	
9,630 square yards macadam hauled and placed, at 14 cents . . . . .	1,348 20	
1,246 square yards block gutters laid, at 20 cents . . . . .	249 20	
4,157 feet edgestone hauled and set, at 20 cents . . . . .	831 40	
67 square yards flagging crossings furnished and laid, at \$5.00 . . . . .	335 00	
1,967 cubic yards gravel furnished, at 80 cents . . . . .	1,573 60	
Hauling crushed stone as per agreement:		
434 double loads crushed stone, at 25 cents . . . . .	108 50	
190 double loads crushed stone, at $66\frac{2}{3}$ cents . . . . .	126 67	
	—	5,009 97
		\$12,268 15
Less amount retained from Neil McBride . . . . .		751 50
		\$11,516 65

**Brighton avenue, Commonwealth avenue to Cambridge street.**

Labor . . . . .	\$2,391 71
5,747 $\frac{9}{12}$ feet edgestone . . . . .	3,563 60
496 feet circular edgestone . . . . .	644 87
18 large and 6 small corners . . . . .	120 90
Stone . . . . .	12,447 78
Concrete sidewalks . . . . .	110 00
Lumber . . . . .	114 25

Amount paid to Doherty & Connors (section between Commonwealth avenue and Harvard avenue):

9,241 cubic yards sub-grading, at 31 cents . . . . .	\$2,864 71
9,643 square yards Telford base hauled and placed, at 39 cents . . . . .	3,760 77
9,643 square yards macadam hauled and placed, at 33 cents . . . . .	3,182 19
3,028.4 square yards block gutters furnished and laid, at \$2.00 . . . . .	6,056 80
4,043 feet edgestone hauled and set, at 31 cents . . . . .	1,253 33
	—
<i>Carried forward . . . . .</i>	\$17,117 80
	—
	\$19,393 11

<i>Brought forward . . . . .</i>	\$17,117 80	\$19,393 11
3,706 square yards gravel sidewalks furnished and laid, at 31 cents . . . . .	1,148 86	
124.7 square yards flagging crossings furnished and laid, at \$4.50 . . . . .	561 15	
Removing trees, etc. . . . .	450 00	
36 covers reset, at \$3.00 . . . . .	108 00	
37 square yards block gutters (old, re-laid), at 50 cents . . . . .	18 50	
70 square yards crosswalks (old, relaid), at \$1.00 . . . . .	70 00	
Extra work as ordered :		
26½ days labor, at \$1.75 . . . . .	\$46 67	
7 days, double team, at \$5.00 . . . . .	35 00	
1½ days, steam roller, at \$15.00 . . . . .	23 33	
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	\$105 00	
Plus 15 per cent . . . . .	15 75	
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Removing house . . . . .	120 75	
652 tons crushed stone hauled, at 10 cents . . . . .	100 00	
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	\$19,760 26	
Less amount paid in 1895 . . . . .	1,557 71	
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Amount paid to Doherty & Connors (section between Harvard avenue and Cambridge street) :		18,202 55
6,534 cubic yards sub grading, at 35 cents . . . . .	\$2,286 90	
8,526 square yards Telford base, at 41 cents . . . . .	3,495 66	
8,526 square yards macadam, at 35 cents . . . . .	2,984 10	
2,158 square yards block gutters, at \$2.05 . . . . .	4,423 90	
2,999 feet edgestone set, at 33 cents . .	989 67	
2,688 square yards gravel sidewalks, at 35 cents . . . . .	940 80	
136.5 square yards flagging crossings, at \$4.65 . . . . .	634 73	
Removing trees, etc. . . . .	150 00	
25 covers reset, at \$3.00 . . . . .	75 00	
88 square yards gutters (old, relaid), at 55 cents . . . . .	48 40	
99 square yards flagging crossings, at \$1.15 . . . . .	113 85	
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<i>Carried forward . . . . .</i>	\$16,143 01	\$37,595 66

<i>Brought forward . . . . .</i>	\$16,143 01	\$37,595 66
<i>Extra work as ordered:</i>		
21 days labor, at \$1.75 . . . . .	\$36 75	
13 days, double team, at \$5.00, . . . . .	65 00	
2 $\frac{7}{9}$ days, steam roller, at \$15.00 . . . . .	41 67	
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	\$143 42	
Plus 15 per cent . . . . .	21 51	
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557 tons crushed stone hauled, at 10 cents . . . . .	55 70	
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	\$16,363 64	
Less amount paid in 1895 . . . . .	909 92	
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	15,453 72	
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Amount retained on Section 1 . . . . .	\$988 01	
Amount retained on Section 2 . . . . .	818 18	
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	1,806 19	
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	\$53,049 38	
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Clinton street.		
Labor . . . . .		\$1,839 40
Tearing down buildings . . . . .		643 05
53 $\frac{8}{12}$ feet circular edgestone . . . . .		69 77
Advertising . . . . .		27 60
Teaming . . . . .		1,607 50
Masonry . . . . .		42 00
Gravel and sand . . . . .		439 98
Lumber . . . . .		39 54
23,175 large paving blocks . . . . .		1,117 96
428 feet flagging . . . . .		248 24
18,000 paving bricks . . . . .		171 00
Amount paid to Dennis J. Kiley & Co.: . . . . .		
482 feet edgestone set, at 8 cents . . . . .	\$38 56	
999 square yards block paving (new), at 25 cents . . . . .	249 75	
859 square yards block paving (old), at 25 cents . . . . .	214 75	
98 square yards granite flagging laid, at 25 cents . . . . .	24 50	
422 square yards brick paving, at 18 cents . . . . .	75 96	
Extra labor, night and Sun- day work . . . . .	\$81 00	
Add 15 per cent . . . . .	12 15	
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	93 15	
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	696 67	
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	\$6,942 71	
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Clinton street.

Labor . . . . .	\$1,839 40
Tearing down buildings . . . . .	643 05
53 $\frac{8}{12}$ feet circular edgestone . . . . .	69 77
Advertising . . . . .	27 60
Teaming . . . . .	1,607 50
Masonry . . . . .	42 00
Gravel and sand . . . . .	439 98
Lumber . . . . .	39 54
23,175 large paving blocks . . . . .	1,117 96
428 feet flagging . . . . .	248 24
18,000 paving bricks . . . . .	171 00
Amount paid to Dennis J. Kiley & Co.: . . . . .	
482 feet edgestone set, at 8 cents . . . . .	\$38 56
999 square yards block paving (new), at 25 cents . . . . .	249 75
859 square yards block paving (old), at 25 cents . . . . .	214 75
98 square yards granite flagging laid, at 25 cents . . . . .	24 50
422 square yards brick paving, at 18 cents . . . . .	75 96
Extra labor, night and Sun- day work . . . . .	\$81 00
Add 15 per cent . . . . .	12 15
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	93 15
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	696 67
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	\$6,942 71
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**Fenelon street, between Washington and Merrill streets.**

Labor . . . . .	\$259 45
Teaming . . . . .	5 92
Advertising . . . . .	98 15
640 feet edgestone . . . . .	396 80
36 feet circular edgestone . . . . .	46 80
5,150 gutter blocks . . . . .	203 43
Stone . . . . .	287 27

Amount paid to D. E. Lynch:

224.6 cubic yards sub-grading, at 28 cents . . . . .	\$62 89
650 square yards macadam hauled and placed, at 12 cents . . . . .	78 00
246.5 square yards block gutters hauled and laid, at 65 cents . . . . .	160 23
668 feet edgestone hauled and set, at 23 cents . . . . .	153 64
428 square yards gravel sidewalks furnished and laid, at 22 cents . . . . .	94 16
20.2 square yards flagging crossings, at \$4.50 . . . . .	90 90
½ cubic yard ledge excavation, at \$1.75 . . . . .	88
1 cover reset . . . . .	3 00
6.7 square yards gutters (old, relaid), at 65 cents . . . . .	4 36
2.3 square yards crossings laid, at \$1.00 . . . . .	2 30
	650 36
	\$1,948 18
Less amount retained from D. E. Lynch . . . . .	32 52
	<u>\$1,915 66</u>

**Geneva avenue, between Westville street and Dorchester avenue.**

Labor . . . . .	\$1,319 20
Advertising . . . . .	55 88
Fuel . . . . .	1 17
3,850 gutter blocks . . . . .	152 08
679.7 feet edgestone . . . . .	421 41

Amount paid to Finneran and O'Hearn:

800 cubic yards sub-grading, at 32 cents, . . . . .	\$256 00
1,975 square yards macadam hauled and placed, at 15 cents . . . . .	296 25
445 square yards block gutters laid, at 27 cents . . . . .	120 15
1,125 feet edgestone hauled and set, at 16 cents . . . . .	180 00
<i>Carried forward</i> . . . . .	\$852 40
	<u>\$1,949 74</u>

<i>Brought forward . . . . .</i>	\$852 40	\$1,949 74
547 square yards gravel sidewalks, at 22 cents . . . . .	120 34	
120 square yards flagging crossings, at \$4.30 . . . . .	516 00	
5 cubic yards ledge excavation, at \$1.75 . . . . .	8 75	
	—	1,497 49
		—————
Less amount retained from Finneran & O'Hearn,		\$3,447 23
		224 62
		—————
Work done by the Bridge Division . . . . .		\$3,222 61
		14,026 58
		—————
		\$17,249 19

**Granby street, between Commonwealth avenue and Charles river.**

Labor . . . . .	\$322 02	
Teaming . . . . .	30 50	
716 $\frac{3}{4}$ feet edgestone . . . . .	444 07	
Stone . . . . .	1,376 10	
Cap-stone wall . . . . .	320 00	
Iron fence on sea wall . . . . .	110 00	
Advertising . . . . .	41 26	
Amount paid to Quimby & Ferguson :		
373 cubic yards sub-grading, at 38 cents, . . . . .	\$141 74	
1,718 square yards macadam hauled and placed, at 27 cents . . . . .	463 86	
358 square yards block gutters fur- nished and laid, at \$2.10 . . . . .	751 80	
855 feet edgestone hauled and set, at 22 cents . . . . .	188 10	
680 square yards gravel sidewalks fur- nished and laid, at 27 cents . . . . .	183 60	
102.6 square yards flagging crossings furnished and laid, at \$4.10 . . . . .	420 66	
110 cubic yards gravel, at 78 cents . . . . .	85 80	
4 covers reset, at \$3.00 . . . . .	12 00	
14 square yards gutters (old, relaid), at 60 cents . . . . .	8 40	
	—	
Credit by 659.25 feet edgestone, hauled by city . . . . .	52 74	\$2,255 96
	—	2,203 22
		—————
Less amount retained from Quimby & Ferguson . . . . .		\$4,847 17
		110 16
		—————
		\$4,737 01

<b>Greenbrier street, between Bowdoin and Bloomfield streets.</b>	
Labor . . . . .	\$451 15
Stone . . . . .	1,217 79
Advertising . . . . .	47 25
1,304 $\frac{9}{12}$ feet edgestone . . . . .	808 94
103 $\frac{8}{12}$ feet circular edgestone . . . . .	134 77
Amount paid to Quimby & Ferguson:	
1,317 cubic yards sub-grading, at 32 cents . . . . .	\$421 44
1,546 square yards macadam hauled and placed, at 22 cents . . . . .	340 12
524.7 square yards block gutters furnished and laid, at \$2.15 . . . . .	1,128 11
1,579 feet edgestone hauled and set, at 24 cents . . . . .	378 96
970 square yards gravel sidewalks, at 22 cents . . . . .	213 40
45.2 square yards flagging crossings furnished and laid, at \$4.25 . . . . .	192 10
Removing trees, etc. . . . .	25 00
11 covers reset, at \$3.00 . . . . .	33 00
35 square yards gutters (old, relaid), at 65 cents . . . . .	22 75
Extra work, puddling and filling trench, cutting edgestone and rebuilding sewer manhole:	
12 hours, stonecutter, at 50 cents . . . . .	\$6 00
1 day, mason . . . . .	4 20
20 hours labor, at 20 cents . . . . .	4 00
6 hours, single team, at \$3.00, . . . . .	2 00
6 hours, 2-horse roller, at \$5.00 . . . . .	3 33
2 barrels cement, at \$1.50 . . . . .	3 00
Sand . . . . .	1 10
	—
	\$23 63
. Add 15 per cent . . . . .	3 54
	—
Pulling down shed . . . . .	27 17
	—
	15 00
	—
	2,797 05
	—
Less amount retained from Quimby & Ferguson . . . . .	\$5,456 95
	—
	139 85
	—
	\$5,317 10

<b>Harvard Avenue</b> , Commonwealth avenue to Brookline line.	
Teaming . . . . .	\$45 00
Stone . . . . .	2,287 74
Amount retained from William Scollans for work done under contract in 1895 . . . . .	165 65
	<hr/>
	\$2,498 39

<b>Harvard street, west of Blue Hill avenue.</b>	
Labor . . . . .	\$129 25
Advertising . . . . .	25 13
Amount paid to James McDonald :	
1,337.36 cubic yards excavation, at 83 cents .	1,110 01
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	\$1,264 39
Amount retained from James McDonald . . .	40 00
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	\$1,224 39

Ivy street, St. Mary's street to Mountfort street.  
Amount retained from James Grant & Co., for  
work done under contract in 1895 . . . \$366 12

Josephine street, between Geneva avenue and Ditson streets.		
Labor . . . . .		\$384 70
Stone . . . . .		506 96
98 $\frac{1}{2}$ feet circular edgestone . . . . .		128 28
Artificial stone sidewalk . . . . .		445 57
Advertising . . . . .		51 05
Amount paid to J. J. Nawn:		
97 cubic yards sub-grading, at 22 cents	\$21 34	
1,374 square yards macadam, hauled and placed, at 17 cents . . . . .	233 58	
460 square yards granite block gutters, furnished and laid, at \$1.95 . . . . .	897 00	
145.5 feet edgestone, hauled and set, at 20 cents . . . . .	29 10	
156.8 square yards gravel sidewalks, furnished and laid, at 30 cents . . . . .	47 04	
37.1 square yards flagging crossings furnished and laid, at \$4.30 . . . . .	159 53	
539 cubic yards gravel, at 90 cents . . . . .	485 10	
4 covers reset, at \$3.00 . . . . .	12 00	
Extra work furnishing lumber and banking sidewalks:		
100 feet B. & M. lumber, at \$17.00 . . . . .	\$1 70	
<i>Carried forward</i> . . . . .		
	\$1 70	\$1,884 64
		\$1,516 56

<i>Brought forward . . . . .</i>	\$1 70	\$1,884 69	\$1,516 56
1 day labor . . . . .	1 75		
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	\$3 45		
Plus 15 per cent . . . . .	52		
	<hr/>	<hr/>	<hr/>
	\$3 97		
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Less amount retained from J. J. Nawn . . . . .		1,888 66	
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		\$3,405 22	
		194 43	
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		\$3,210 79	
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**Kenmore street, between Commonwealth avenue and Newbury street.**

Amount retained from Doherty & Connors, for work done under contract in 1895 . . . . . \$48 71

**Lauriat avenue, Blue Hill avenue to Tucker street.**

Labor . . . . .	\$989 00
5,279 $\frac{6}{12}$ feet edgestone . . . . .	3,273 33
488 $\frac{6}{12}$ feet circular edgestone . . . . .	635 11
16 small and 2 large corners . . . . .	64 80
64,250 gutter blocks . . . . .	2,537 87
Stone . . . . .	3,063 49
Filling . . . . .	1,279 08
Advertising . . . . .	87 74

Amount paid to Doherty & Connors:

2,300 cubic yards sub-grad-	
ing, at 29 cents . . . . .	\$667 00
6,000 square yards macadam, hauled	
and placed, at 20 cents . . . . .	1,200 00
1,460 square yards block gutters hauled	
and laid, at 54 cents . . . . .	788 40
4,800 feet edgestone hauled and set, at	
25 cents . . . . .	1,200 00
3,100 square yards gravel sidewalks fur-	
nished and laid, at 20 cents . . . . .	620 00
169 square yards flagging crossings,	
furnished and laid, at \$4.50 . . . . .	760 50
95 cubic yards ledge excavation, at \$1.75	
37 cubic yards gravel furnished, at 61	
cents . . . . .	166 25
14 covers reset, at \$3.00 . . . . .	22 57
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	42 00
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	5,466 72
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Less amount retained from Doherty & Connors . . . . .

\$17,397 14

820 01

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\$16,577 13

**Morse street**, between Washington street and Bowdoin avenue.

Labor . . . . .	\$272 45
Teaming . . . . .	10 75
Stone . . . . .	394 22
645 feet edgestone . . . . .	399 90
46 $\frac{1}{2}$ feet circular edgestone . . . . .	59 96
7,250 gutter blocks . . . . .	286 37
Advertising . . . . .	49 95
Printing . . . . .	3 00

Amount paid to D. E. Lynch:

305 cubic yards sub-grading, at 28 cents,	\$85 40
733 square yards macadam hauled and placed, at 14 cents . . . . .	102 62
238 square yards block gutters hauled and laid, at 65 cents . . . . .	154 70
700 feet edgestone hauled and set, at 12 cents . . . . .	84 00
400 square yards gravel sidewalks furnished and laid, at 22 cents . . . . .	88 00
22.2 square yards flagging crossings furnished and laid, at \$4.50 . . . . .	99 90
4 covers reset, at \$3.00 . . . . .	12 00
23 square yards gutters (old, relaid), at 65 cents . . . . .	14 95

— — — — —

\$2,118 17

32 08

— — — — —

\$2,086 09

**Newbury street**, Charlesgate west to Brookline avenue.

Amount retained from F. H. Cowin for work done under contract in 1894 . . . . .	\$66 70
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**Norway street**, Falmouth street to Massachusetts avenue.

Amount retained from Quimby & Ferguson for work done under contract in 1894 . . . . .	\$152 86
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**Norway street**, Massachusetts avenue to Parker street.

Labor . . . . .	\$33 75
Filling . . . . .	1,274 26
— — — — —	
	\$1,308 01

**Parker street,** Huntington avenue to Westland avenue.

Amount retained from Doherty & O'Leary for work done under contract in 1895 . . . . .	<u>\$1,192 51</u>
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**Peterborough street,** Audubon road to Fairhaven street.

Labor . . . . .	\$652 25
Printing . . . . .	59 55
Sundries . . . . .	8 20
Amount paid to Boston and Albany R.R. Co.: 11,880 cubic yards filling, at 51 cents . . . . .	6,058 80
	<u>                        </u>
	\$6,778 80
Amount retained from Boston & Albany R.R. Co.,	908 82
	<u>                        </u>
	\$5,869 98

**Ruggles street,** Parker street to Back Bay Fens.

Labor . . . . .	\$57 74
Printing . . . . .	87 20
7,496 cubic yards filling, at 65 cents . . . . .	4,872 40
	<u>                        </u>
	\$5,017 34

**St. Alphonsus street,** Tremont street to Calumet street.

Labor . . . . .	\$753 17
Stone . . . . .	1,468 74
15,615 gutter blocks . . . . .	616 79
1,379 $\frac{1}{2}$ feet straight edgestone . . . . .	855 39
70 $\frac{1}{2}$ feet circular edgestone . . . . .	91 43
1 large corner . . . . .	5 60
Repairing fence . . . . .	20 83
Advertising . . . . .	36 00

## Amount paid to Quimby &amp; Ferguson:

847 cubic yards sub-grading, at 38 cents, . . . . .	\$321 86
2,297 square yards macadam hauled and placed, at 27 cents. . . . .	620 19
576 square yards block gutters hauled and laid, at 82 cents . . . . .	472 32
1,525 feet edgestone hauled and set, at 24 cents . . . . .	366 00
1,152 square yards gravel sidewalks furnished and laid, at 22 cents . . . . .	253 44
22.3 square yards flagging crossings furnished and laid, at \$4.25 . . . . .	94 78
<i>Carried forward</i> . . . . .	<u>\$2,128 59</u>
	<u>\$3,847 95</u>

<i>Brought forward . . . . .</i>	\$2,128 59	\$3,847 95
232 cubic yards ledge excavation, at \$1.80 . . . . .	417 60	
8 covers reset, at \$3.00 . . . . .	24 00	
Retaining walls, fences, etc. . . . .	787 00	
24 square yards flagging (old, relaid), at \$1.25 . . . . .	30 00	

Extra work as ordered :

187.4 feet capstone for wall, at 75 cents . . . . .	\$140 55	
47 square yards brick sidewalks, at 50 cents . . . . .	23 50	
19 double loads binding gravel, at \$1.50 . . . . .	28 50	
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	\$192 55	
Plus 15 per cent . . . . .	28 88	
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	221 43	
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	\$3,608 62	
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Less amount retained from Quimby & Ferguson,	\$7,456 57	
	180 43	
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	\$7,276 14	

**St. Germain street**, Massachusetts avenue to Dalton street.  
 Amount retained from Quimby & Ferguson for  
 work done under contract in 1895 . . . . . \$251 95

**Sherborn street**, Commonwealth avenue to Dalton street.  
 Amount retained from Doherty & Connors for  
 work done under contract in 1895 . . . . . \$210 71

**Turner street.**

Labor . . . . .	\$548 49	
Teaming . . . . .	96 00	
2,380 cubic yards filling . . . . .	1,190 00	
	<hr/>	
	\$1,834 49	

**Vancouver street**, Huntington avenue to Ruggles street.  
 Labor . . . . . \$40 13  
 Filling . . . . . 1,602 99  


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\$1,643 12

**Wilder street, Washington street to Geneva avenue.**

Labor . . . . .	\$671 14
Teaming . . . . .	8 28
Stone . . . . .	627 86
11,175 gutter blocks . . . . .	441 41
844 feet edgestone . . . . .	523 28
17 $\frac{3}{4}$ feet circular edgestone . . . . .	22 32
Advertising . . . . .	48 75

**Amount paid to Finneran & O'Hearn:**

1,201 cubic yards sub-grading, at 23 cents . . . . .	\$276 23
1,235 square yards macadam hauled and placed, at 15 cents . . . . .	185 25
375 square yards block gutters hauled and placed, at 60 cents . . . . .	225 00
874 feet edgestone hauled and set, at 20 cents . . . . .	174 80
22.7 square yards flagging crossings furnished and laid, at \$5.00 . . . . .	113 50
1.7 cubic yards ledge excavation, at \$1.75 . . . . .	2 98
6 covers reset, at \$3.00 . . . . .	18 00

**Extra work rebuilding catch-basin:**

3 days mason work, at \$4.50 . . . . .	\$13 50
1 barrel cement . . . . .	1 00
1 barrel sand . . . . .	50
100 paving bricks . . . . .	1 25
Carting . . . . .	50
142 feet edgestone reset . . . . .	17 04
97 square yards gutters repaved . . . . .	33 95
11 square yards brick sidewalks . . . . .	1 76
68 $\frac{1}{2}$ tons screenings hauled, . . . . .	23 98
1 day, double team . . . . .	5 00
4 $\frac{1}{2}$ days labor resurfacing sidewalks . . . . .	7 88
	—————
	\$106 36
Plus 15 per cent . . . . .	15 95
	—————
	122 31
	—————
	1,118 07
	—————
Less amount retained from Finneran & O'Hearn . . . . .	\$3,461 11
	55 90
	—————
	\$3,405 21

*NEW EDGESTONE.*

The following tables show the amount of new edgestone set during the year:—

## CITY PROPER.

*Wards 6, 7, 8, 9, 10, 11, 12, 17 and 18, in whole or in part.  
(Paving Districts Nos. 8 and 10.)*

	Lin. ft.
East Lenox street . . . . .	323
Fellows street . . . . .	88
Flagg street . . . . .	106
Laconia street . . . . .	381
Massachusetts avenue . . . . .	760
Sundry streets in small quantities . . . . .	39
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	1,697

## ROXBURY.

*Wards 16, 17, 18, 19, 21 and 22, in whole or in part.  
(Paving District No. 7.)*

	Lin. ft.
Abbotsford street . . . . .	1,233
Alleghany street . . . . .	55
Atherton street . . . . .	51
Batchelder street . . . . .	60
Bickford street . . . . .	328
Cobden street . . . . .	95
Centre street . . . . .	305
Columbus avenue . . . . .	8,983
Crawford street . . . . .	149
Creighton street . . . . .	256
Dean street . . . . .	1,037
Dennis street . . . . .	84
Dudley street . . . . .	140
Egleston street . . . . .	87
Elmore street . . . . .	203
Fairland street . . . . .	116
Fellows street . . . . .	57
Fenno street . . . . .	159
George street . . . . .	111
Georgia street . . . . .	394
Glenwood street . . . . .	108
Harold street . . . . .	67
Heath street . . . . .	110
Holborn street . . . . .	50
Howland street . . . . .	312
Hunneman street . . . . .	143
	<hr/>
<i>Carried forward . . . . .</i>	14,693

SOUTH BOSTON.

*Wards 13, 14, 15 and 16, in whole or in part. (Paving District No. 1.)*

## EAST BOSTON.

*Wards 1 and 2. (Paving District No. 2.)*

	Lin. ft.
Blackinton street . . . . .	130
Falcon street . . . . .	142
Leyden street . . . . .	246
London street . . . . .	74
Morris street . . . . .	75
Paris street . . . . .	99
Sundry streets in small quantities . . . . .	41
	<hr/>
	807
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## DORCHESTER.

*Wards 16, 20 and 24, in whole or in part. (Paving District No. 6.)*

	Lin. ft.
Adams street . . . . .	124
Algonquin street . . . . .	194
Allston street . . . . .	100
Armandine street . . . . .	564
Barrington street . . . . .	120
Bellevue street . . . . .	277
Bird street . . . . .	65
Blue Hill avenue . . . . .	3,787
Bowdoin street . . . . .	197
Brookford street . . . . .	72
Centre street . . . . .	50
Danube street . . . . .	201
Dewey street . . . . .	651
Dorchester avenue . . . . .	233
Draper court . . . . .	105
Edwin street . . . . .	163
Eldon street . . . . .	80
Erie street . . . . .	252
Fenelon street . . . . .	668
Geneva avenue . . . . .	882
Greenbrier street . . . . .	1,579
Hartland street . . . . .	190
Howard avenue . . . . .	197
Ingleside street . . . . .	208
Josephine street . . . . .	100
Lauriat avenue . . . . .	4,800
Morse street . . . . .	693
Park street . . . . .	402
Robinson street . . . . .	104
Richmond street . . . . .	200
	<hr/>
<i>Carried forward . . . . .</i>	17,258

<i>Brought forward</i>	.	.	.	.	.	.	Lin. ft.
Rosedale street	.	.	.	.	.	.	17,258
Roslin street	.	.	.	.	.	.	52
Sagamore street	.	.	.	.	.	.	272
Salcombe street	.	.	.	.	.	.	53
Sydney street	.	.	.	.	.	.	1,417
Talbot avenue	.	.	.	.	.	.	100
Washington street	.	.	.	.	.	.	207
Welles avenue	.	.	.	.	.	.	537
Westville street	.	.	.	.	.	.	155
Wheatland avenue	.	.	.	.	.	.	132
Wilder street	.	.	.	.	.	.	87
Sundry streets in small quantities	.	.	.	.	.	.	877
							220
							<u>21,367</u>

## WEST ROXBURY.

Wards 22 and 23, in whole or in part. (Paving District No. 5.)

	.	.	.	.	.	.	Lin. ft.
Ashland street	.	.	.	.	.	.	75
Birch street	.	.	.	.	.	.	78
Boylston street	.	.	.	.	.	.	514
Cheshire street	.	.	.	.	.	.	60
Clive street	.	.	.	.	.	.	171
Cohasset street	.	.	.	.	.	.	100
Corey street	.	.	.	.	.	.	86
Forest Hills street	.	.	.	.	.	.	225
Florence street	.	.	.	.	.	.	99
Hyde Park avenue	.	.	.	.	.	.	67
Keyes street	.	.	.	.	.	.	156
Mt. Vernon street	.	.	.	.	.	.	102
Peter Parley street	.	.	.	.	.	.	292
South street	.	.	.	.	.	.	79
Washington street	.	.	.	.	.	.	348
Sundry streets in small quantities	.	.	.	.	.	.	46
							<u>2,498</u>

## BACK BAY.

Wards 10, 11 and 19, in whole or in part. (Paving District No. 9.)

	.	.	.	.	.	.	Lin. ft.
Audubon road	.	.	.	.	.	.	834
Bay State road	.	.	.	.	.	.	1,562
Beacon street	.	.	.	.	.	.	70
Boylston street	.	.	.	.	.	.	5,629
<i>Carried forward</i>	.	.	.	.	.	.	8,095

	Lin. ft.
<i>Brought forward</i> . . . . .	8,095
Dundee street . . . . .	70
Falmouth street . . . . .	177
Granby street . . . . .	716
Huntington avenue . . . . .	32,405
Marlboro' street . . . . .	200
Norway street . . . . .	116
Scotia street . . . . .	60
Sundry streets in small quantities . . . . .	78
	<hr/>
	41,917

## BRIGHTON.

Ward 25. (*Paving District No. 4.*)

	Lin. ft.
Brighton avenue . . . . .	7,042
Commonwealth avenue . . . . .	1,230
Linden street . . . . .	125
Reedsdale street . . . . .	110
	<hr/>
	8,507

## CHARLESTOWN.

Wards 3, 4 and 5. (*Paving District No. 3.*)

	Lin. ft.
St. Martin street . . . . .	645
Union street . . . . .	146
	<hr/>
	791

## RECAPITULATION.

	Lin. ft.
City proper . . . . .	1,697
Roxbury . . . . .	20,111
South Boston . . . . .	3,855
East Boston . . . . .	807
Dorchester . . . . .	21,367
West Roxbury . . . . .	2,498
Back Bay . . . . .	41,917
Brighton . . . . .	8,507
Charlestown . . . . .	791
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	101,550

**Edgestones and Sidewalks.***New Edgestones. (First setting.) Lin. Ft.*

YEAR.	City Proper.	Roxbury.	South Boston.	East Boston.	Dorchester.	West Roxbury.	Brighton.	Charlestown.	Back Bay.	Total.
1891.....	8,936	22,693	11,724	4,131	18,138	4,617	2,032	2,227	.....	73,798
1892.....	9,222	25,506	9,631	11,238	36,859	9,970	9,001	2,804	.....	114,231
1893.....	1,118	14,979	4,372	1,969	10,587	4,795	3,981	.....	.....	41,804
1894.....	1,916	39,324	521	816	6,544	1,568	1,323	694	.....	52,706
1895.....	2,990	17,053	2,097	1,146	15,205	8,319	4,191	668	.....	51,669
1896.....	1,697	20,111	3,855	807	21,367	2,498	8,507	791	41,917	101,550
Totals.....	25,179	139,666	32,203	20,107	108,700	31,767	29,035	7,184	41,917	435,758

**NEW BRICK SIDEWALKS.**

The following tables show the number of square yards of brick sidewalks laid during the year:—

**CITY PROPER.**

*Wards 6, 7, 8, 9, 10, 11, 12, 17 and 18, in whole or in part.  
(Paving Districts Nos. 8 and 10.)*

	Sq. yds.
Albany street . . . . .	103
East Dedham street . . . . .	75
East Lenox street . . . . .	170
East Newton street . . . . .	67
Fellows street . . . . .	60
Flagg street . . . . .	100
Harrison avenue . . . . .	140
Massachusetts avenue . . . . .	200
Northampton street . . . . .	75
Sundry streets in small quantities . . . . .	54
	1,044

**ROXBURY.**

*Wards 16, 17, 18, 19, 21 and 22, in whole or in part. (Paving District, No. 7.)*

	Sq. yds.
Bower street . . . . .	73
Camden street . . . . .	53
Carried forward . . . . .	126

	Sq. yds.
<i>Carried forward . . . . .</i>	<i>126</i>
Centre street . . . . .	172
Cedar street . . . . .	166
Cobden street . . . . .	50
Columbus avenue . . . . .	11,500
Dean street . . . . .	128
Dennis street . . . . .	113
Dudley street . . . . .	193
Egleston street . . . . .	66
Elm Hill avenue . . . . .	88
Farnham street . . . . .	52
Fenno street . . . . .	182
Glenwood street . . . . .	62
Georgia street . . . . .	333
Howland street . . . . .	226
Humboldt avenue . . . . .	152
Hunneman street . . . . .	100
Hutchings street . . . . .	98
Howland street . . . . .	226
Langdon street . . . . .	67
Lamont street . . . . .	75
Lambert street . . . . .	65
Moreland street . . . . .	50
Northampton street . . . . .	53
Oakland street . . . . .	57
Parker street . . . . .	112
Paul Gore street . . . . .	128
Pontine street . . . . .	66
Reed street . . . . .	75
Regent street . . . . .	60
Roxbury street . . . . .	111
Rockland street . . . . .	70
St. Alphonsus street . . . . .	51
Southwood street . . . . .	154
Walnut avenue . . . . .	96
Whiting street . . . . .	104
Windsor street . . . . .	57
Woodward avenue . . . . .	50
Sundry streets in small quantities . . . . .	363
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	15,897

## SOUTH BOSTON.

*Wards 13, 14, 15 and 16, in whole or in part. (Paving District No. 1.)*

	Sq. yds.
Bellflower street . . . . .	100
Broadway . . . . .	50
<i>Brought forward . . . . .</i>	<i>150</i>

## STREET DEPARTMENT — PAVING DIVISION.

277

	Sq. yds.
<i>Brought forward . . . . .</i>	150
Buttonwood street . . . . .	184
D street . . . . .	85
Dorchester avenue . . . . .	156
East Eighth street . . . . .	177
East Fifth street . . . . .	186
East Second street . . . . .	50
East Seventh street . . . . .	160
East Sixth street . . . . .	68
East Third street . . . . .	127
Emerson street . . . . .	50
H street . . . . .	236
Harvest street . . . . .	120
Howell street . . . . .	143
L street . . . . .	210
N street . . . . .	52
Washburn street . . . . .	98
Sundry streets in small quantities . . . . .	62
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	2,314

## EAST BOSTON.

Wards 1 and 2. (Paving District No. 2.)

	Sq. yds.
Border street . . . . .	85
Morris street . . . . .	54
Paris street . . . . .	70
Sundry streets in small quantities . . . . .	172
	<hr/>
	381

## DORCHESTER.

Wards 16, 20 and 24, in whole or in part. (Paving District No. 6.)

	Sq. yds.
Alban street . . . . .	178
Armandine street . . . . .	333
Bird street . . . . .	50
Brookford street . . . . .	55
Buttonwood street . . . . .	100
Blue Hill avenue . . . . .	99
Dewey street . . . . .	275
Dorchester avenue . . . . .	251
Erie street . . . . .	57
Mt. Vernon street . . . . .	269
Stoughton street . . . . .	110
Talbot avenue . . . . .	214
Washington street . . . . .	375
Welles avenue . . . . .	110
Sundry streets in small quantities . . . . .	140
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	2,616

## WEST ROXBURY.

*Wards 22 and 23, in whole or in part. (Paving District No. 5.)*

	Sq. yds.
Boylston street . . . . .	164
Centre street . . . . .	70
Green street . . . . .	70
Keyes street . . . . .	77
Sundry streets in small quantities . . . . .	161
	<hr/>
	542
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## BACK BAY.

*Wards 10, 11 and 19, in whole or in part. (Paving District No. 9.)*

	Sq. yds.
Beacon street . . . . .	200
Falmouth street . . . . .	138
Huntington avenue . . . . .	4,380
Norway street . . . . .	70
Newbury street . . . . .	100
Parker street . . . . .	50
St. Botolph street . . . . .	135
	<hr/>
	5,073
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## CHARLESTOWN.

*Wards 3, 4 and 5. (Paving District No. 3.)*

	Sq. yds.
Beach street . . . . .	85
Sprague street . . . . .	68
Union street . . . . .	80
Walnut street . . . . .	55
	<hr/>
	288
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## RECAPITULATION.

	Sq. yds.
City Proper . . . . .	1,044
Roxbury . . . . .	15,897
South Boston . . . . .	2,314
East Boston . . . . .	381
Dorchester . . . . .	2,616
West Roxbury . . . . .	542
Back Bay . . . . .	5,073
Charlestown . . . . .	288
	<hr/>
	28,155
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**New Brick Sidewalks.***First laying. Square yards.*

YEAR.	City Proper.	Roxbury.	South Boston.	East Boston.	Dorchester.	West Roxbury.	Brighton.	Charlestown.	Back Bay.	Total.
1891 .....	3,881	9,098	3,628	2,176	1,478	967	377	120 .....		21,725
1892 .....	10,423	20,231	4,484	12,847	10,462	2,905	1,068	3,451 .....		65,871
1893 .....	964	5,912	751	2,197	2,412	350 .....		175 .....		12,761
1894 .....	1,537	11,533	2,706	2,115	453	834 .....		437 .....		19,615
1895 .....	4,103	6,246	1,946	1,151	2,146	1,734	2,968	408 .....		20,632
1896 .....	1,044	15,897	2,314	381	2,616	542 .....		288	5,073	28,155
Totals.....	21,952	68,917	15,819	20,867	19,567	7,332	4,353	4,879	5,073	168,759

**PROPERTY IN CHARGE OF THE DEPUTY SUPERINTENDENT OF PAVING DIVISION.**

Buildings and wharf on Albany street, opposite Sharon street. The building is of brick and wood, and covers some 8,000 square feet of land, and is divided into a shed for storage, blacksmith's and carpenter's shops, tool-room and stable. The total contents of the lot, including wharf and building, are 63,180 square feet.

Fort-Hill wharf, containing 21,054 square feet, placed in charge of the Paving Department May 18, 1874, to be used for the landing and storage of paving-blocks and gravel until such time as said wharf shall be wanted for the extension of Oliver street. The greater part of said wharf is occupied by the Sanitary Division as a garbage-dump, and the building thereon is leased to a tenant.

Lot on Chelsea, Marion and Paris streets, East Boston, containing 43,550 square feet. Part of this lot used by the Sewer Division.

Ledge lot on Washington street, corner Dimock street, Roxbury, containing 134,671 square feet. Upon this lot are buildings containing a steam-engine and stone-crusher.

Highland-street Stable lot. Upon this lot is a large brick stable, erected in 1873, and occupied by the Sanitary and Paving Divisions; also a brick building used as a blacksmith's shop, and a shed for the storage of tools, etc.

Ledge lot on Codman street, Dorchester, containing 299,000 square feet, was purchased in 1870. Upon this lot is a shed containing a steam-engine and stone-crusher; also a stable and tool-house.

On the Almshouse lot, Hancock street, Dorchester, there are two stables; also a shed and tool-house.

Ledge lot on Magnolia street and Bird place, Dorchester, containing 81,068 square feet. This lot was purchased by the town of Dorchester in 1867.

Downer-avenue lot, Dorchester, containing 35,300 square feet.

On Child street, West Roxbury, a lot of land containing 43,024 square feet, upon which are a stable and shed, blacksmith's shop, and tool-house.

Gravel lot in the town of Milton, on Brush Hill road, containing 64,523 square feet, hired by the town of Dorchester for nine hundred and ninety-nine years.

Gravel lot on Morton street, Ward 23, containing about one-third of an acre, purchased by the town of West Roxbury in 1870, used for storage purposes.

Ledge and gravel lot, rear of Union street, containing about 37,000 square feet, purchased by the town of Brighton. This lot is at present leased.

Ledge lot on Chestnut Hill avenue, Brighton, containing about thirteen acres, upon which are an office, engine-house, stable and crusher plant.

On Medford street, Charlestown, a wharf lot, foot of Elm street, containing 8,000 feet, upon which are sheds, office, stable, etc.

In South Boston, corner of H and Ninth streets, stable, carriage-house, shed, tool-house and office on leased land.

On Hereford street, a yard with shed, tool-house and office.

Wharf, known as Atkin's wharf, 521 Commercial street, purchased in 1887 for \$24,000, containing 22,553 square feet, having on it an office and stable.

On Kenney street, Roxbury, buildings containing engines, stone-crushers, tools, etc., on leased land.

On Centre street, West Roxbury, buildings containing engines, stone-crushers, tools, etc., on leased land.

On Rosseter street, Dorchester, buildings containing engines, stone-crushers, tools, etc., on leased land.

On Heath street, Roxbury, buildings containing engines, stone-crushers, tools, etc., on leased land.

On Revere street, wharf for storing paving blocks, etc.

## Streets Laid Out or Extended.

DATE.	Street.	Location.	Length, Lin. ft.
Dec. 29,	Abbotsford st.	From Harold st. to Crawford st., Roxbury .....	60.00
May 6,	Athelwold st..	From School st. to Kilton st., Dorchester .....	1,031.00
Nov. 21,	Atherton st...	From Amory st. to Lamartine st., Roxbury .....	650.23
July 10,	Chamberl'n st.	From Harvard st. to Algonquin st., Dorchester .....	459.60
May 7,	Edwin st. ....	From Dorchester av. to Shawmut park, Dorchester .....	1,168.00
July 10,	Elizabeth st...	From Norfolk st. to Astoria st., Dorchester .....	280.43
*June 2,	Fenelon st. ....	(Formerly Burbank st.) from Washington st. to Merrill st., Dorchester .....	308.74
Oct. 12,	Fullerton st...	(Formerly Miner st.) from Brookline av. to Fairhaven st., Back Bay .....	447.04
July 10,	Gaylord st....	(Formerly Cook st.) from Washington st. to Chamberlain st., Dorchester .....	433.97
*Nov. 18,	Ellet st.....	From Adams st. to Dorchester av., Dorchester .....	425.28
Dec. 12,	Judson st.....	Over part of a private way known as Dromey av. to Brookford st., Roxbury and Dorchester .....	217.00
Feb. 15,	Laconia st. ....	(Formerly Ashland pl.) from Washington st. to Harrison av., City Proper .....	307.75
Oct. 12,	Leicester st...	From Bennett st. to Washington st., Brighton .....	764.57
Nov. 2,	Leonard st....	From Duncan st. to Clayton st., Dorchester .....	430.14
June 2,	Morse st.....	From Washington st. to Bowdoin av., Dorchester .....	316.41
July 10,	Norway st. ....	(Formerly Caledonia st.) from Massachusetts av. to Parker st., Back Bay .....	683.48
Nov. 16,	Peterboro' st..	From Boylston road to Audubon road, Back Bay .....	1,840.73
Jan. 2,	Pontine st....	From Batchelder st. to Clifton st., Dorchester .....	383.00
May 29,	Reed st.....	From Thorndike st. to Hunneman st., City Proper and Rox..	354.98
June 10,	Ruggles st....	From Parker st. to Back Bay Fens, Roxbury .....	945.21
June 30,	St. Botolph st.	From Massachusetts av. to Gainsborough st., Back Bay .....	566.86
May 11,	St. Martin st..	(Formerly Quincy st.) from Bunker Hill st. to Medford st., Charlestown .....	513.46
		<i>Carried forward .....</i>	12,587.88

**Streets Laid Out or Extended — Concluded.**

DATE.	Street.	Location.	Length, Lin. ft.
Nov. 11,	Tappan st....	<i>Brought forward.....</i>	12,587.88
Sept. 17,	Union st....	From South st., W. Roxbury....	446.51
		From Washington st. to Lynde st., Charlestown .....	70.21
May 20,	Vancouver st..	From Huntington av. to Ruggles st., extended to the Back Bay Fens, Roxbury.....	253.94
May 29,	Whiting st....	(Formerly Homer pl.) from More- land st. to Winthrop st., Rox... av., Dorchester.....	320.00
July 10,	Wilder st....	From Washington st. to Geneva av., Dorchester.....	523.29
July 10,	Wolcott st....	From Columbia st. to Erie st., Dorchester .....	672 64
Oct. 29,	Woodward pk.	From Howard av. to Folsom st., Dorchester .....	403.18
			15,277.65

**Streets Widened and Relocated.**

DATE.	Street.	Location.	Sq. ft.
July 10,	Clinton st....	From Fulton st. to Commercial st., City Proper.....	4,887
Sept. 17,	Centre st....	From Washington st. to Reming- ton st., Dorchester.....	28,242
Nov. 27,	McLellan st...	Between Erie st. and Blue Hill av., Dorchester.....	.....
May 9,	Prentiss st... .	On southwesterly side at N. Y., N. H. & H. R.R., Roxbury.....	97
Dec. 24.	River st.....	Between Oakland st. and Blue av., Dorchester.....	3,027
Nov. 21,	Ruggles st....	At corner of Columbus av., Rox..	408
Oct. 19,	State st.....	At corner of Devonshire st.....	46
May 23,	Tremont st...	Between Columbus av. and Lin- den Park st.....	124
Jan. 21,	Washington st.	Between Dale st. and Circuit st., Roxbury.....	.....
Oct. 29,	Washington st.	Between Brent st. and Welles av., Dorchester .....	1,647
			38,478

**Streets Discontinued.**

DATE.	Street.	Location.	Sq. ft.
Oct. 19,	State st.....	At corner of Congress sq., City Proper.....	59
Feb. 4,	Windsor st....	Portions northwesterly and south-easterly of the extension of Columbus av., Roxbury.....	2,235
			2,294

**Streets Ordered to Be Constructed.**

DATE.	Street.	Location.
Aug. 7,	Athelwold st.....	From School st. to Kilton st. Dorchester.
July 10, " "	Chamberlain st... Elizabeth st. ....	From Harvard st. to Algonquin st., Dor. From Norfolk st. to Astoria st., Dor.
Nov. 18,	Ellet st.....	From Adams st. to Dorchester av., Dor.
June 2,	Fenelon st. ....	(Formerly Burbank st.) from Washington st. to Merrill st., Dorchester.
Oct. 12,	Fullerton st.....	(Formerly Miner st.) from Brookline av. to Fairhaven st., Back Bay.
July 10,	Gaylord st.....	(Formerly Cook st.) from Washington st. to Chamberlain st., Dorchester.
June 2,	Morse st.....	From Washington st. to Bowdoin av., Dor.
July 10,	Norway st. ....	(Formerly Caledonia st.) from Massachusetts av. to Parker st., Back Bay.
Nov. 16,	Peterboro' st....	From Boylston road to Audubon road, Back Bay.
June 10,	Ruggles st.....	From Parker st. to Back Bay Fens, Back Bay.
Jan. 29,	Turner st. ....	From Haviland st. to Astor st., Back Bay.
May 20,	Vancouver st....	From Huntington av. to Ruggles st., extended to the Back Bay Fens, Roxbury.
July 10, " "	Wilder st..... Woleott st.....	From Washington st. to Geneva av., Dor. From Columbia st. to Erie st., Dor.

**Names of Streets Changed.**

DATE.	Street.	Location.
March 4,	Back st.....	Now Harvard st, Dorchester and West Roxbury.....
March 4,	Bread st.....	Now Franklin st., City Proper.....
March 4,	Hamilton.....	Now Batterymarch st., City Proper.....

The records of the Street Commissioners for the year 1896, show the following results:—

Streets laid out or extended . . . . .	15,277.65	lin. feet
Streets widened and relocated . . . . .	38,477	sq. feet
Streets discontinued . . . . .	2,294	sq. feet
Increase in mileage . . . . .	2.89	+ miles.

## PERMIT OFFICE.

Permits have been issued from the Permit Office during the year ending Jan. 31, 1897, as follows:—

## STREET OPENINGS.

Name.	Permits.	Openings.	Feet.
American Telegraph Co. . . . .	4	24	72
Boston Electric Light Co. . . . .	438	584	61,977
Boston Fire Department . . . . .	48	90	3,541
Boston Gaslight Co. . . . .	657	657	46,476
Boston & Albany R.R. Co. . . . .	6	6	240
Boston Lamp Department . . . . .	44	44	421
Boston Low Tension Wire Association . . . . .	39	39	4,501
Boston & Maine R.R. Co. . . . .	12	12	1,000
Boston Park Department . . . . .	6	6	295
Boston Sewer Division . . . . .	155	155	29,929
Boston Transit Commission . . . . .	15	15	265
Boston Water Department Eastern Division . . . . .	3,347	3,347	162,175
Boston Water Department Mystic Division . . . . .	279	279	7,643
Brookline Gaslight Co. . . . .	812	812	36,604
Charlestown Gaslight Co. . . . .	64	64	5,338
Church Creen Light & Power Co. . . . .	6	6	1,490
Dorchester Gaslight Co. . . . .	488	488	36,268
Edison Electric Illuminating Co.,	559	559	42,995
East Boston Gaslight Co. . . . .	145	145	7,978
Jamaica Plain Gaslight Co. . . . .	228	228	17,762
Lynn & Boston R.R. Co. . . . .	3	3	1,900
Metropolitan Sewerage Commission . . . . .	9	9	830
Metropolitan Construction Co. . . . .	7	7	12,350
New England Telegraph & Telephone Co., of Mass. . . . .	389	1,393	50,101
New England Telegraph Co. . . . .	1	1	3
N. Y., N. H. & H. R.R. Co. . . . .	4	4	130
N. Y. & N. E. R.R. Co. . . . .	4	4	2,650
Norfolk Suburban Street R.R. Co. . . . .	6	6	295
Postal Telegraph Cable Co. . . . .	15	38	1,244
Quincy Market Cold Storage Co. . . . .	24	24	5,215
Roxbury Gaslight Co. . . . .	270	270	37,522
South Boston Gaslight Co. . . . .	248	248	10,865
Union Freight R.R. Co. . . . .	4	4	364
West End Street Railway Co. . . . .	416	1,608	302,295
Western Union Telegraph Co. . . . .	35	560	5,612
West Roxbury & Roslindale Street R.R. Co. . . . .	11	764	44,550
Miscellaneous . . . . .	2,432	2,433	109,587
Totals . . . . .	11,289	15,017	1,055,171

There were also 2,075 openings made between Feb. 1, 1896 and Jan. 1, 1897, on emergency permits issued Jan. 1, 1896.

On Jan. 1, 1897, the new form of emergency permits went into effect, and there were 215 openings to Feb. 1, 1897.

These openings as near as can be ascertained averaged about 6 feet each, making 13,740 feet.

Making the total length of openings about 229.7 miles.

Permits other than for opening streets have been issued as follows:—

Advertising, by man wearing hat and coat lettered . . . . .	29
Clearing snow from roof . . . . .	53
Driving cattle . . . . .	3
Distributing sand . . . . .	9
Erecting projections (illuminated signs, etc.) . . . . .	310
Erecting, repairing and removing awnings . . . . .	4,264
Erecting and repairing buildings . . . . .	7,216
Feeding horses on the street . . . . .	1,064
Moving buildings . . . . .	42
Occupying sidewalk for loading and unloading goods . . . . .	15
Pedlers, four different classes . . . . .	877
Placing signs flat on buildings . . . . .	2,138
Raising and lowering safes, machinery, etc. . . . .	522
Special for various purposes . . . . .	230
Watering carts . . . . .	110
 Total . . . . .	 16,882
  Total number permits for street openings . . . . .	 11,289
Total number permits for all other purposes . . . . .	16,882
 Grand total . . . . .	 28,171

There have been 60 applications for permits to sell fruit from windows, doorways and areas, and for occupying sidewalks for loading or unloading goods, and these were referred to the Board of Police for report as to location, etc., and their recommendation has been carefully considered in the issuance of these permits.

Previous to April 25, 1896, there were 13,390 notices sent to the various foremen directing them to repair defects in the streets, which had been reported by the police or others; also 1,074 to private parties to repair work improperly done, where permits had been granted to open the streets, and to owners of estates where coal-holes, sidewalk-lights, etc., were defective. After that date the Superintendent of Inspectors assumed charge of the Inspectors, and 3,834 notices were sent to private individuals and 135 claims for damages investigated.

Four hundred and sixty-one notices have been sent to departments, and others, regarding proposed street improvements.

Three hundred and eighty-three new bonds were filed this year, and these with all bonds previously filed are now being investigated by a clerk specially detailed.

#### STREET-NUMBERING.

Numbers have been assigned to the estates in the different districts as follows:—

City Proper . . . . .	8 whole streets, and 63 parts of streets
Dorchester . . . . .	18 whole streets, and 73 parts of streets
Roxbury . . . . .	8 whole streets, and 46 parts of streets
W. Roxbury . . . . .	4 whole streets, and 33 parts of streets
Brighton . . . . .	1 whole streets, and 25 parts of streets
South Boston . . . . .	2 whole streets, and 32 parts of streets
Charlestown . . . . .	1 whole street, and 11 parts of streets
East Boston . . . . .	18 parts of streets
Total . . . . .	42 whole streets, and 301 parts of streets

About 5,000 figures were required for this work.

## APPENDIX D.

## REPORT OF DEPUTY SUPERINTENDENT OF THE SANITARY DIVISION.

ROOMS 917 TO 920, TREMONT BUILDING,  
BOSTON, Feb. 1, 1897.

BENJ. W. WELLS, Esq., *Superintendent of Streets:*

DEAR SIR :— I respectfully submit the annual report of the expenditures, income, and operation of the Sanitary Division of the Street Department for the financial year ending Jan. 31, 1897.

Yours respectfully,

PATRICK O'SHEA,  
*Deputy Superintendent.*

The work of the Sanitary Division includes the removal of house-offal and the removal of house and store dirt and ashes, accumulated from the burning of materials for heating buildings and for domestic purposes.

The following table shows the amounts expended for the maintenance of the Sanitary Division for the past five (5) years :—

1892 . . . . .	\$469,370 74
1893 . . . . .	481,300 63
1894 . . . . .	467,459 02
1895 . . . . .	432,778 52
1896 . . . . .	476,807 34

**Comparative Table Showing Net Cost of Maintenance of the Sanitary Division to the City of Boston.**

	Expended.	Income.	Net cost to City.
1892 .....	\$469,370 74	\$36,426 16	\$432,944 58
1893 .....	481,300 63	32,056 27	449,244 36
1894 .....	467,459 02	42,320 55	425,638 47
1895 .....	432,778 52	42,985 53	389,792 99
1896 .....	477,241 54	36,146 77	441,094 77

The present system of disposal of offal and garbage in this city is expensive and unsatisfactory, and early action should be taken looking to the introduction of more modern and sanitary methods. Cremation or reduction process works, properly located, and constructed and operated with due care, could be established with advantage to the general public, and without offence to the individual.

The City Government should make a sufficient appropriation to accomplish this object.

But few complaints have been received concerning the failure of the division to promptly remove offal and ashes; investigation of these has usually shown that either offal has not been properly separated from ashes or other refuse, as is insisted upon by the department, or else that the receptacles were deposited in some inaccessible place, or were larger than the ordinances provide and the regulations of the department permit.

In order that householders might understand these regulations, and that the work be not unnecessarily delayed, the following circular was issued: —

#### CITY OF BOSTON.

##### *Notice to Housekeepers and Tenants.*

Housekeepers and other occupants of dwellings are requested to place their house and cellar dirt and sweepings in the streets opposite their premises between the hours of sunrise and 2 o'clock, P.M., of the following days: Monday, May 4; Tuesday, May 5; Wednesday, May 6; Thursday, May 7; Friday, May 8; when they will be removed by the city carts. After which times no person will be allowed to place any dirt, ashes, filth or rubbish of any kind whatever, in any of the ways, streets or places of the city, without a permit from the Superintendent of Streets.

Dirt of any kind not to be placed in the streets on Saturday.

BENJ. W. WELLS,  
*Superintendent of Streets.*

CITY HALL, BOSTON, 1896.

#### SPECIAL NOTICE.

On and after above-named days, ashes, etc., in order to be removed by city carts, must be placed in receptacles not larger than an ordinary flour barrel, and in a position on a level with the grade of the adjoining sidewalk.

Vault filth, offal, bricks and mortar, gravel and earth, garden raking and shrubbery, are not included in the above, and will not be removed by the city if placed in the streets.

NOTE.—This circular, printed in English, Hebrew, and Italian, was posted in prominent places by the regular bill-posting companies, and for a week was also carried on the sides of all the wagons and carts owned by this division.

During the past year the shops of the division at the South Yard have been continued. These are now established with competent mechanics upon the same basis as any journeyman shop in the city, and the repairs and some constructive work of this and other divisions has been done cheaply and well. They consist of a wheelwright and blacksmith shop, paint shop, harness shop, and horse-shoeing shop, and a statement of the work performed will be found later in Appendix.

The following table shows the number of loads of offal collected and removed in the last five (5) years: —

#### AMOUNT OF HOUSE OFFAL REMOVED.

Year.	No. of Loads.
1892	46,343
1893	51,415
1894	50,637
1895	51,327
1896	56,402

Each load of offal is equivalent to fifty-seven (57) cubic feet and has a maximum weight of one and one-half ( $1\frac{1}{2}$ ) tons at certain seasons of the year.

The above table does not include previous to the year 1893 the amount collected by contract in East Boston and Brighton, which amounted to about 5,100 loads per year. Of the amount (56,402 loads) collected during the year 1896, 3,786 were collected by the East Boston contractor, 1,362 were collected by the Brighton contractor, and 4,707 were collected by the Dorchester contractor, and 703 loads were collected by the West Roxbury contractor, leaving 45,844 loads collected by city teams.

The collection of this material is attended to in winter by an average regular force of 75 city offal carts and 171 men, and on contract work 17 offal carts and 34 men; making a total of 92 offal carts and 205 men. At different times, and especially in summer, an approximate extra force of 21 teams and 42 men are employed.

The disposal has been made during the year in the following manner: The offal from the markets, and offal that is decayed, is put on board a scow and towed to sea; the offal of Charlestown is taken to the yard at Malden bridge and there disposed of to farmers; the offal of East Boston is collected by contractors, and is removed to Revere; the offal of the City Proper and South Boston is conveyed to the yard at the South End, and disposed of to farmers, who remove it daily; the offal of Roxbury and a part of West Roxbury is conveyed to the yard on Highland street, and disposed of to farmers; a portion of the collections of West Roxbury is collected by contract and removed to Needham; the offal of Brighton is collected by contract and disposed of outside of the district; the offal in Dorchester, collected by the contractor who sells it to farmers from his own offal-sheds near Commercial Point.

#### Collection and Disposal of Offal.

YEAR.	Total amount collected.	Amount sold.	Amount dumped on scow and towed to sea or wasted.	Per cent wasted to total collection.	Amount of receipts from sales.
1892 <sup>1</sup>	46,343 loads.	30,773 loads.	15,570 loads.	33 per cent.	\$21,282 82
1893 <sup>2</sup>	46,276 " "	30,824 " "	15,363 " "	30 " "	20,790 03
1894 <sup>3</sup>	42,082 " "	37,057 " "	5,025 " "	12 " "	26,262 40
1895 <sup>4</sup>	41,480 " "	36,620 " "	4,860 " "	12 " "	27,374 47
1896 <sup>5</sup>	45,844 " "	35,549 " "	10,295 " "	22 " "	21,187 76

<sup>1,2</sup>Twelve months. Above table does not include contracts in East Boston and Brighton.

<sup>3</sup>In East Boston, 3,720 loads; Brighton, 1,539 loads; Dorchester, 3,296 loads; total, 8,555 loads,—collected during 1894 are not included in above table. For 1891 and 1892, East Boston and Brighton were estimated at 5,100 loads.

<sup>4</sup>In East Boston, 3,732 loads; Brighton, 1,419 loads; Dorchester 4,179 loads; West Roxbury, 517 loads; total, 9,847 loads,—collected during 1895, not included in above table.

<sup>5</sup>In East Boston, 3,786 loads; Brighton, 1,362 loads; Dorchester, 4,707 loads; West Roxbury, 703 loads; total, 10,558 loads,—collected during 1896 not included in above table.

The following table shows in convenient form the full force engaged in the collection of offal alone throughout the entire city:—

### The Force Employed.

CITY FORCE.	Hired teams.	CONTRACTORS' TEAMS.				Total.
		E. Boston.	Brighton.	Dorch'ter.	W. Roxbury.	
Sub-Foremen...	4	.....	.....	.....	.....	1 5
Inspectors.....	5	.....	1	1	1	..... 8
Offal Clerks....	1	.....	.....	.....	.....	1
Teamsters.....	68	7	6	2	7	2 92
Helpers .....	72	7	6	2	7	2 96
Dumpers .....	3	.....	.....	.....	.....	3
Totals .....	153	14	13	5	15	5 205

### REMOVAL OF ASHES AND HOUSE DIRT.

The removal of ashes, house and store dirt, has been attended to during the year by a minimum force of 250 men and 105 city carts, also by 6 carts with an East Boston contractor, 5 carts with a South Boston contractor, 10 carts with a Dorchester contractor, and 3 carts with a West Roxbury contractor. At different times, and especially during the winter months, an additional force of 43 teams and 86 men are employed.

This work shows a constant increase from year to year, as will be seen in the following table, and is an indication of the actual growth of the city:—

### AMOUNT OF ASHES, HOUSE AND STORE DIRT REMOVED.

Year.		No. of Loads.
1892	.	303,878
1893	.	320,571
1894	.	326,798
1895	.	336,886
1896	.	363,975

Each load of ashes contains about 44 cubic feet.

The following table shows in convenient form the force engaged in this collection throughout the entire city:—

### The Force Employed.

CITY FORCE.	Hired Teams.	CONTRACTORS' TEAMS.					Total.
		West So. Boston.	North Dorchester.	South Dorchester.	East Boston.	West Roxbury.	
Sub-Foremen.....	7	.....	.....	.....	1	.....	8
Inspectors.....	9	.....	1	1	.....	.....	12
Taliymen .....	6	.....	.....	.....	.....	.....	6
Teamsters.....	105	43	5	5	5	6	172
Helpers .....	107	43	5	5	5	3	174
Dampers.....	16	.....	.....	.....	.....	.....	16
Total.....	250	86	11	11	10	13	388

### Comparative Statement of Number of Loads of Ashes Collected during 16 Weeks of the Summer and 16 Weeks of the Winter.

Summer.	Loads.	Winter.	Loads.	Difference for Winter.
Apr. 30, 1892, to Aug. 19, 1892	82,034	Oct. 30, 1892, to Feb. 12, 1893	106,772	24,738
" 29, 1893, " " 18, 1893	91,721	" 28, 1893, " " 16, 1894	106,851	15,130
" 27, 1894, " " 16, 1894	88,865	" 25, 1894, " " 7, 1895	116,915	28,050
" 26, 1895, " " 15, 1895	94,671	" 18, 1895, " " 6, 1896	121,873	27,202
" 30, 1896, " " 13, 1896	101,135	" 16, 1896, " Jan. 28, 1897	117,214	16,079

*Final Disposition* of all material collected from Feb. 1, 1896, to Feb. 1, 1897, together with the portion of street sweepings and cesspool dirt, disposed of for other divisions by the Sanitary Division is shown in the following table:—

	Amount collected.	Deposited on low lands.	Towed to sea.	Collected by contractors.	Sold to farmers.
	Loads.	Loads.	Loads.	Loads.	Loads.
Ashes, house and store dirt,	363,975	220,907	102,491	40,577	
House offal.....	56,402	.....	7,910	10,558	37,754
Street sweepings .....	36,072	.....	36,072		
Cesspool dirt... .....	1,011	.....	1,011		
	457,460	220,907	147,484	51,135	37,754

<sup>1</sup> This amount is included in the amount collected, 56,402. Of the 10,558 loads, 3,786 were collected in East Boston, 1,362 in Brighton, 4,707 in Dorchester, and 703 in West Roxbury.

The total expenditures of the division, including work done for other divisions and paid for by them, was .	\$508,443 23
Less amount so repaid . . . . .	31,201 69
	_____
Cash paid and bills rendered to City Collector . . . . .	\$477,241 54
	36,146 77
Net cost of maintenance of Sanitary Division, Feb. 1, 1896, to Jan. 31, 1897 . . . . .	\$441,094 77

Details of expenditures, income, and operation will be found in Appendix D.

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#### FINANCIAL STATEMENT.

Amount of appropriation . . . . .	\$435,000 00
Transferred from Soldiers' Relief Fund . . . . .	11,000 00
Transferred from Police Department . . . . .	29,330 39
Transferred from Surplus Revenue . . . . .	1,911 15
	_____
Total amount appropriation . . . . .	\$477,241 54
Total amount expended . . . . .	477,241 54

#### INCOME.

Amount of moneys deposited and bills presented to the City Collector for collection for material sold and work performed by the Sanitary Division of the Street Department during the year ending Jan. 31, 1897.

##### *Moneys deposited with City Collector.*

From sale of house offal . . . . .	\$21,187 76
From letting of scow privileges . . . . .	696 35
	_____
	\$21,884 11

##### *Bills deposited with the City Collector.*

For the removal of engine ashes . . . . .	\$12,642 66
For the sale of manure . . . . .	591 60
For the letting of scow privileges . . . . .	28 40
For the letting of Fort Hill Wharf . . . . .	1,000 00
	_____
	\$14,262 66
	_____
	\$36,146 77
Amount collected by the City Collector . . . . .	<u>\$27,735 68</u>

**Objects of Expenditures.**

Items.	Total amount expended.	Amount paid by other Divisions.	Amounts charged to the Sanitary Division
For salaries of Deputy Superintendent and clerks in office,	\$9,707 70	.....	\$9,707 70
For labor in collecting and removing house dirt and ashes,	135,815 71	.....	135,815 71
For labor in collecting and removing house offal.....	87,034 11	.....	87,034 11
For labor of foremen.....	7,438 97	.....	7,438 97
For labor of sub-foremen and inspectors collecting house dirt and ashes.....	10,696 29	.....	10,696 29
For labor of sub-foremen and inspectors collecting house offal .....	7,111 30	.....	7,111 30
For labor of men employed in stables and yards.....	20,210 15	.....	20,210 15
For holidays (allowed time) .....	17,307 56	.....	17,307 56
For labor, stock, and tools used in blacksmith shop.....	6,512 72	.....	6,512 72
For labor, stock, and tools used in wheelwright shop.....	5,137 57	75 09	5,062 48
For labor, stock, and tools used in harness-shop .....	5,246 71	.....	5,246 71
For labor, stock, and tools used in paint shop .....	6,274 42	.....	6,274 42
For labor, stock, and tools used in horseshoeing shop .....	6,052 18	.....	6,052 18
For labor, rental, towage, etc., on account of dumping-scow,	18,795 40	.....	18,795 40
For shoeing horses (outside shops) .....	2,412 37	8 00	2,404 37
For extra teams collecting ashes and house dirt.....	66,004 74	16,653 00	49,351 74
For extra teams collecting house offal.....	5,289 00	1,117 50	4,171 50
For grain used in stables.....	14,660 16	3,783 32	10,876 84
For hay and straw used in stables.....	17,018 86	4,588 59	12,430 27
For horses.....	7,031 00	2,611 00	4,420 00
For repairs on stables and sheds .....	2,010 59	.....	2,010 59
For fuel, gas, and electric lights.....	1,788 52	.....	1,788 52
For veterinary services and medicine for horses.....	2,370 09	.....	2,370 09
For printing, stationery, and advertising.....	1,807 40	242 06	1,565 34
For water rates .....	854 60	14 00	840 60
For ash stock, consisting of cart-covers, baskets, etc.....	377 55	156 00	221 55
For offal stock, consisting of buckets, etc.....	399 35	.....	399 35
<i>Carried forward.....</i>	<i>\$465,365 02</i>	<i>\$29,248 56</i>	<i>\$436,116 46</i>

Items.	Total amount expended.	Amount paid by other Divisions.	Amounts charged to the Sanitary Division
<i>Brought forward .....</i>	\$465,365 02	\$29,248 56	\$436,116 46
For stable stock, consisting of curry combs, brushes, etc...	1,693 26	13 18	1,680 08
For collecting house dirt and ashes in East Boston.....	7,400 00	608 33	6,791 67
For collecting house dirt and ashes in South Boston, west of Dorchester st.....	1,496 25	.....	1,496 25
For collecting house dirt and ashes in Dorchester, south of Park, School, and Harvard sts.....	3,985 00	323 75	3,661 25
For collecting house dirt and ashes in Dorchester, north of Park, School, and Harvard sts.....	4,387 50	365 62	4,021 88
For collecting house dirt and ashes in West Roxbury, south of Pond, May, Arborway, and Morton sts.....	1,700 00	.....	1,700 00
For collecting house offal in East Boston .....	8,000 00	.....	8,000 00
For collecting house offal in Brighton .....	2,000 00	.....	2,000 00
For collecting house offal in part of West Roxbury.....	1,488 00	.....	1,488 00
For collecting house offal in Dorchester .....	7,500 00	625 00	6,875 00
For incidental expenses .....	3,428 20	17 25	3,410 95
	\$508,443 23	\$31,201 69	\$477,241 54
Telephone .....	\$657 04		
Travelling expenses .	817 80		
Board of horses .....	610 05		
Rent of stables .....	600 00		
Goddard buggy .....	390 00		
Miscellaneous supplies for office.....	284 08		
Miscellaneous supplies for stable .....	29 03		
Damage by city team,	20 25		
Use of horses .....	13 45		
Newspapers .....	6 50		
	\$3,428 20		
Paid by Street-Cleaning Division .....			22,740 49
Paid by Paving Division.....			3,947 40
Paid by Sewer Division.....			2,043 40
Paid by Bridge Division.....			400 60
Paid by Street-Watering Division .....			398 50
Paid by Central Office .....			108 30
Paid by County of Suffolk.....			1,442 00
Paid by City Engineer.....			71 00
Paid by Ferry Division .....			50 00
	\$508,443 23	\$31,201 69	\$508,443 23

**Total Cost for Removal of House-dirt, Ashes and House-offal.****HOUSE-DIRT AND ASHES ACCOUNT.**

Expended for labor, as per pay-rolls . . .	\$146,512 00
Expended for stock, etc., per ledger account,	154,714 55
Expended on contracts, South Boston . . .	1,496 25
Expended on contracts, Dorchester . . .	8,372 50
Expended on contracts, East Boston . . .	7,400 00
Expended on contract, part of West Roxbury,	1,700 00
	<hr/>
	\$320,195 30

**HOUSE-OFFAL ACCOUNT.**

Expended for labor, as per pay-rolls . . .	\$94,145 41
Expended for stock, etc., as per ledger ac- count . . . . .	61,978 52
Expended on contract, East Boston . . .	8,000 00
Expended on contract, Brighton . . .	2,000 00
Expended on contract, Dorchester . . .	7,500 00
Expended on contract, West Roxbury . . .	2,000 00
	<hr/>
Salaries . . . . .	\$9,707 70
Incidentals . . . . .	3,428 30
	<hr/>
Total . . . . .	13,136 00
	<hr/>
	\$508,443 23

**Comparative Table showing the Cost of Collecting Ashes and Offal and De-  
livering same at various Dumps.**

Cost per cart-load, including administration expenses . . .	\$1 14
" " " minus " "	1 10
" " " of ashes, hired teams, and contracts . .	59
" " " " labor, hired teams, and contracts,	88
" " " " offal, " " " " "	3 10
" " " " " hired teams, and contracts . .	1 85
" " dumping-boat load to transport garbage to sea . .	55 94
" " cart-load " " " " "	13

**Amount expended for the Collection of House-dirt, Ashes and House-offal,  
Labor, Hired Teams and Contracts.**

DISTRICTS.	Expended for Collecting.	
	Ashes.	Offal.
1 — South Boston.....	\$16,603 74	\$8,334 00
2 — East Boston .....	7,681 25	8,270 75
3 — Charlestown.....	14,581 15	6,530 11
4 — Brighton .....	6,279 50	2,362 50
5 — West Roxbury.....	13,938 75	6,587 50
6 — Dorchester .....	8,839 00	7,939 50
7 — Roxbury .....	39,416 50	21,819 59
8, 9 — South End and Back Bay.....	73,270 79	52,001 91
10 — West and North End.....	50,874 81	4,576 55
 Totals.....	 \$231,485 49	 \$118,422 41

## ASH CONTRACTS.

D. O'Sullivan.....	\$1,496 25	for territory, South Boston, west of Dorchester street.
W. F. Hedrington,	7,400 00	" " in East Boston.
Matthew E. Nawn,	1,700 00	" West Roxbury, south of Pond street.
John McShane...	4,387 50	" Dorchester, north of Park and School streets.
" " ...	3,985 00	" Dorchester, south of Park and School streets.

## OFFAL CONTRACTS.

Thomas Mulligan.	\$8,000 00	for territory in East Boston.
George T. Barnes.	1,488 00	" " West Roxbury.
John McShane....	7,500 00	" Dorchester.
D. B. Morrill.....	2,000 00	" Brighton.

## EXPENSES OF DUMPING BOATS.

Amount expended for towing by department tow-boat	.	\$5,786 34
Amount expended for towing by hired tow-boat,	.	1,082 00
Amount expended for Repairs on boats	.	\$4,234 56
" " " " " wharf	.	309 26
Amount expended for Labor, Captain	.	\$1,750 00
" " " " crews and dumpers,	.	4,513 63
Amount expended for Dredging	.	6,263 63
" " " " Canvass dust protectors	.	350 00
		453 25

## INCIDENTALS.

Amount expended for Disinfectants	.	\$110 72
" " " Manilla rope, blocks, etc.	.	63 30
" " " Telephone, salt, etc.	.	76 87
" " " Dories	.	41 08
" " " Kerosene oil	.	5 04
" " " Coal	.	12 87
" " " Ferry tolls, etc.	.	6 48
		316 36
		\$18,795 40

Number of trips to sea by department tow-boat	.	309
" " " hired tow-boat	.	27
		336

Cost per trip, \$55.94.

Number of cart loads of garbage carried to sea, 147,484.

Cost per cart load, 13 cents.

## Material Collected by Districts.

MATERIAL.	South End and Back Bay.	West.	Roxbury.	Charlestown.	Brighton.	S. Boston.	E. Boston.	Dorchester.	W. Roxbury.	Total Loads.
House dirt and ashes .....	106,755	88,669	57,389	21,081	9,802	25,240	11,112	23,099	20,928	363,975
House offal .....	24,053	2,244	10,325	2,665	1,362	4,092	3,786	4,707	3,030	56,402
Total.....	130,808	90,913	67,664	23,696	11,164	29,332	14,898	27,806	23,958	420,377

## Disposition of Material Collected.

WHERE DUMPED.	Loads of House dirt and Ashes,	Loads of House offal.	Loads of Street sweepings, Street Cleaning Division.	Loads of Cesspool Matter, Sewer Division.	Total Loads.
Massachusetts ave., J. C. Cobb, First st., East Cambridge, J. T. Scully .....	31,911	.....	.....	.....	31,911
Ward st., Sewall-Day Co. ....	20,603	.....	.....	.....	20,603
Norfolk ave., J. J. Nawn .....	15,948	.....	.....	.....	15,948
Mill pond, Charlestown, City Park Department .....	15,410	.....	.....	.....	15,410
Huntington ave., J. C. Gal- lagher .....	13,063	.....	.....	.....	13,063
Vale st., Choate Burnham estate .....	10,903	.....	.....	.....	10,903
Centre st., Owen Nawn .....	10,661	.....	.....	.....	10,661
431 Medford st., City Park De- partment .....	10,030	.....	.....	.....	10,030
Harold st., J. Stone .....	7,958	.....	.....	.....	7,958
First st., cor. Congress, State of Massachusetts .....	7,382	.....	.....	.....	7,382
Williams st., Mrs. Carey .....	6,539	.....	.....	.....	6,539
Parker st., Mr. Bowers .....	6,394	.....	.....	.....	6,394
Swett st., J. C. Cobb .....	5,725	.....	.....	.....	5,725
May st., Seavers estate .....	5,232	.....	.....	.....	5,232
Devon st., Frank Foster .....	4,813	.....	.....	.....	4,813
Maverick st., E. Boston Land Company .....	4,691	.....	.....	.....	4,691
Ninth & H sts., Thomas Hills, Proctor st., Mr. Brown .....	4,543	.....	.....	.....	4,543
Brighton ave., A. Timmins .....	3,612	.....	.....	.....	3,612
Prescott st., E. Boston Land Company .....	3,523	.....	.....	.....	3,523
Massachusetts ave., L. A. Brown .....	2,836	.....	.....	.....	2,836
Brought forward.....	2,666	.....	.....	.....	2,666
	2,492	.....	.....	.....	2,492
	196,935	.....	.....	.....	196,935

## Deposition of Material Collected.—Continued.

WHERE DUMPED.	Loads of House dirt and Ashes.	Loads of House offal.	Loads of Street sweepings, Street Cleaning Division.	Loads of Cesspool Matter, Sewer Division.	Total Loads.
<i>Carried forward.....</i>	196,935	.....	.....	.....	196,935
Congress st., State of Massachusetts .....	2,357	.....	.....	.....	2,357
Condor st., John Hayes .....	2,279	.....	.....	.....	2,279
Brookline ave., Jas. H. Barry, Harold st., Harris estate.....	2,128	.....	.....	.....	2,128
Shirley st., Star Brewery .....	2,057	.....	.....	.....	2,057
Cottage st., Dorchester Historical Society.....	2,009	.....	.....	.....	2,009
Various places, city teams.....	20,362	.....	.....	.....	20,362
Various places, contracts.....	31,315	.....	.....	.....	31,315
At sea by scows .....	102,491	7,910	36,072	1,011	147,484
Sold to farmers .....	.....	37,934	.....	.....	37,934
E. Boston, by Thos. Mulligan, Brighton, by D. B. Morrill.....	.....	3,786	.....	.....	3,786
Dorchester, by John McShane, W. Roxbury, by G. T. Barnes, .....	.....	1,362	.....	.....	1,362
.....	4,707	.....	.....	.....	4,707
.....	703	.....	.....	.....	703
Totals .....	363,975	56,402	36,072	1,011	457,460

## Account of the Number of Loads of Material Collected from Jan. 31, 1892, to Feb. 1, 1897.

YEARS.	Ashes.	Offal.	Total loads.
1892 .....	303,878	46,343	350,221
1893 .....	320,571	51,415	371,986
1894 .....	326,798	50,637	377,435
1895 .....	336,886	51,327	388,213
1896 .....	<sup>1</sup> 363,975	<sup>2</sup> 56,402	420,377

<sup>1</sup> Dennis O'Sullivan, West South Boston, collected..... 2,402 Loads  
 William F. Hedrington, East Boston, collected..... 11,112 "  
 John H. McShane, North Dorchester, collected..... 13,447 "  
 John H. McShane, South Dorchester, collected..... 9,652 "  
 Matthew E. Nawn, part of West Roxbury, collected .....

3,964 "

40,577 "

<sup>2</sup> Thomas Mulligan, East Boston, collected..... 3,786 Loads  
 David B. Morrill, Brighton, collected..... 1,362 "  
 John McShane, Dorchester, collected..... 4,707 "  
 George T. Barnes, part of West Roxbury, collected..... 703 "  
 10,558 "

## Material Collected, Cost of Hired Teams, including Contracts.

	NUMBER OF LOADS.			AMOUNT EXPENDED.		
	Ashes.	Offal.	Total.	Ashes.	Offal.	Total.
South Yard.....	35,009	596	35,605	\$23,898 24	\$842 50	\$24,740 74
West Yard.....	18,910	5	18,915	11,791 00	12 50	11,803 50
Roxbury Yard.....	22,971	1,043	24,014	15,811 00	2,367 50	18,178 50
Charlestown Yard.....	2,353	317	2,670	1,760 00	696 50	2,456 50
Brighton Yard.....	5,666	7 1,362	6,968	3,502 50	2,000 00	5,502 50
South Boston, Yard.....	11,404	79	11,483	5,644 50	297 50	5,942 00
South Boston, east of Dorchester st., O'Sullivan contract.....	2 2,402	.....	2,402	1,496 25	.....	1,496 25
West Roxbury by Roxbury Yard.....	5,106	475	5,581	3,417 50	1,072 50	4,490 00
West Roxbury, south of Pond and Morton sts., ashes, M. E. Nawn; offal, George Barnes.....	5 3,964	8 703	4,667	1,700 00	1,488 00	3,188 00
East Boston, ashes, W. F. Hedrington; offal, T. Mulligan.....	1 11,112	6 3,786	14,898	7,400 00	8,000 00	15,400 00
Dorchester, ashes, south of Park, School and Harvard sts., John McShane.....	4 9,652	.....	9,652	3,985 00	.....	3,985 00
Dorchester, ashes, north of Park, School and Harvard sts., John McShane.....	3 13,447	.....	13,447	4,387 50	.....	4,387 50
Dorchester, offal, John McShane.....	.....	9 4,707	4,707	.....	7,500 00	7,500 00
	141,936	13,073	155,009	\$84,793 49	\$24,277 00	\$109,070 49

## CONTRACTS.

## Ashes.

## Offal.

<sup>1</sup> Hedrington.....	\$7,300 00	<sup>6</sup> Mulligan.....	\$8,000 00
<sup>2</sup> O'Sullivan.....	5,985 00	<sup>7</sup> Morrill.....	2,000 00
<sup>3</sup> McShane.....	4,237 50	<sup>8</sup> Barnes.....	1,488 00
<sup>4</sup> McShane.....	3,885 00	<sup>9</sup> McShane.....	7,500 00
<sup>5</sup> Nawn.....	1,700 00		

## DIVISION OF AMOUNT EXPENDED.

	Hired Teams.	Contractors.	Total.
Ashes.....	\$65,824 74	\$18,968 75	\$84,793 49
Offal.....	5,289 00	18,988 00	24,277 00
Total.....	\$71,113 74	\$37,956 75	\$109,070 49

**Contracts.**

OBJECT.	Contractor.	Price.	CONTRACT.	
			Commences.	Ends.
Removal of ashes, West, South Boston.....	D. O'Sullivan.....	\$5,985.00	March 1, 1894.	March 1, 1896.
" " South Dorchester .....	J. McShane.....	3,885.00	April 15, 1895.	April 15, 1897.
" " North Dorchester .....	" .....	4,387.50	March 1, 1898.	March 1, 1898.
" " part of West Roxbury.....	M. E. Nawn .....	1,700.00	April 15, 1895.	April 15, 1897.
" " East Boston.....	W. F. Hedrington .....	7,400.00	Feb. 1, 1896.	Feb. 1, 1898.
" " house-off, East Boston.....	T. Mulligan .....	8,000.00	Jan. 1, 1896.	Jan. 1, 1899.
" " " West Roxbury .....	G. T. Barnes .....	1,488.00	April 1, 1895.	April 1, 1898.
" " Dorchester.....	J. McShane.....	7,500.00	April 11, 1895.	April 11, 1897.
" " Brighton.....	D. B. Morrill .....	2,900.00	May 1, 1895.	May 1, 1898.

<sup>1</sup> Feb. 1, 1896, to July 1, 1896.  
July 1, 1896, to Feb. 1, 1898.

**Material Sold by Contract.**

Object.	Contractor.	Price.	Payments made to City Collector.	
			Wynman Bros. ....	\$4.00 a horse per year.
Manure of horses at South Yard.....	{ G. A. Safford.....	2.00 "	2.00 "	\$88.50
" " " West and Charlestown Yards.....	George P. Winn.....	2.00 "	2.00 "	170.67
" " Highland Yard.....	J. A. Budlong & Son.....	1.00 "	1.00 "	269.18
				63.25

The money received from the sales of house-offal is deposited monthly with the City Collector, and then credited to the sinking fund of the city of Boston.

## HOUSE DIRT AND ASHES.

In the collection of house dirt and ashes there are employed 383 men and 200 carts. This material is removed from hotels, tenement-houses and stores daily; from dwelling-houses once a week.

The City Ordinances of 1892 (chapter 36) require that house dirt and ashes shall be kept in an easily accessible place for their removal, the men being obliged to enter the yards and remove the receptacles to the sidewalks, where their contents are dumped into the carts. The receptacles are then placed in their original position. The material is disposed of, if possible on low lands, being used for filling, and is also dumped on scows, to be carried to sea. Of the amount collected last year, 28 per cent was disposed of in this manner, viz., carried to sea.

There are five sections of the city let out by contract for the collection of house dirt and ashes. Both Dorchester contracts are held by John McShane; East Boston, by Wm. F. Hedrington; and a part of West Roxbury by Matthew E. Nawn. At the expiration of one of the South Boston ash contracts—that one held by Dennis O'Sullivan, west of Dorchester street, the work was continued by day labor, as a yard had been established on Ninth street, corner of Vale; all of the teams for the collection of ashes and offal in this section are located there, in order that the work be done by day labor.

## HOUSE OFFAL.

There are employed in the removal of house offal 205 men and 93 wagons. The offal is removed from dwelling-houses twice a week during the summer months, and once a week during the winter; from hotels, markets and restaurants it is removed daily. The men are required to enter yards, collect the offal, empty into wagons and deliver at the depots, located as follows: One on Albany street, one on Highland street, Roxbury, and one at the Almshouse, Charlestown; also to the dumping-boats located at Fort Hill wharf on Atlantic avenue.

The offal is largely sold to farmers of adjoining towns, the remainder is dumped on the scows and carried to sea. About fourteen per cent of the quantity collected during the past year has been disposed of in this manner. The Dorchester contractor disposes of the offal at present in the same manner as the city itself, by sale to farmers.

At present there are four sections of the city let out by contract for the collection of house offal: East Boston, by Thomas Mulligan; Dorchester District, by John McShane; Brighton District, by D. B. Morrill, and a portion of West Roxbury, by George T. Barnes.

The cash revenue received from the sale of house-offal for the past five years has been as follows:—

1892	.	.	.	.	.	.	\$21,282	82
1893	.	.	.	.	.	.	20,790	03
1894	.	.	.	.	.	.	26,262	40
1895	.	.	.	.	.	.	27,374	47
1896	.	.	.	.	.	.	21,884	11

## DIVISION REPAIR-SHOPS.

Located at the South End yards, situated at No. 650 Albany street. At these shops all of the repairs on carriages, carts, wagons, etc., are made, together with the painting of the same; all harnesses are repaired and many made, and a portion of the horseshoeing done.

The mechanics in these shops are engaged also in making repairs on the vehicles, etc., sent by the different divisions of the Street Department; all street signs are painted for the Paving Division, and a certain amount of the horseshoeing is done for the several divisions.

## WHEELWRIGHT AND BLACKSMITHS' SHOPS.

Cost to maintain during the past year, the sum of \$11,650.29 of which amount \$6,461.77 was expended for labor, and \$5,188.52 for stock. The carts, wagons and other vehicles of the division were properly overhauled, when in need of repairs, and the entire lot of ash and offal sleds were put in proper working order. Of the above amount expended in maintaining these shops, the following amounts were charged off to the several divisions, and others for repairing, altering and putting in good condition their carts, wagons, watering-carts, sleds, etc.:—

Paving Division . . . . .	\$1,813 32
Sewer Division . . . . .	660 62
Street Cleaning Division . . . . .	372 04
Bridge Division . . . . .	279 70
Street Watering Division . . . . .	168 75
Ferry Division . . . . .	50 00
Central Office . . . . .	123 14
County of Suffolk . . . . .	169 69
<hr/>	
	\$3,637 26

This leaves a net cost of \$8,013.03 for the repairs and construction of all work of this character for the Sanitary Division.

There are employed in these shops three wheelwrights, four blacksmiths and three helpers.

## PAINT SHOP.

Cost to maintain \$6,274.42 of which amount \$5,008.64 was expended on labor and \$1,265.78 on stock. The work done by this shop was the painting and lettering of that which was either built or repaired in the wheelwright and blacksmiths' shops, together with 1,170 different styled signs that were painted for the Paving Division. Of the above amount expended for maintaining this shop, the following amounts were paid by the several divisions of the department for painting carts, wagons, buggies, signs, etc.:—

Paving Division . . . . .	\$1,617 78
Sewer Division . . . . .	238 82
Street Cleaning Division . . . . .	542 50
Bridge Division . . . . .	82 45
Street Watering Division . . . . .	214 86
Central Office . . . . .	52 70
County of Suffolk . . . . .	140 47
<hr/>	
	\$2,889 58

Leaving the balance \$3,384.84, as the cost of this work for the Sanitary Division.

This shop employs four painters and three helpers.

#### HARNESS SHOP.

Cost to maintain, \$5,246.71, of which amount \$3,028.00 was expended for labor and \$2,218.71 on stock; part of the work sent to the blacksmith and wheelwright shops was always repaired here, such as Goddard and Concord buggies, leather seats to wagons, etc., together with all the new pieces of harness made for the several divisions. The entire lot of old and new harness owned by the Sanitary Division has during the year been overhauled, repaired and oiled at this shop. Of the above amount paid out for maintaining this shop, the amounts charged to the several divisions of the department for work done were as follows:—

Paving Division . . . . .	\$286 96
Sewer Division . . . . .	415 24
Street Cleaning Division . . . . .	430 51
Bridge Division . . . . .	38 47
Street Watering Division . . . . .	8 37
Central Office . . . . .	29 14
County of Suffolk . . . . .	38 96
<hr/>	
	\$1,247 65

Leaving balance, \$3,999.06, as the net cost of work done for the Sanitary Division.

This shop employs four harness-makers and helpers.

#### HORSESHOEING SHOP.

Cost to maintain during the past year \$6,052.18, of which amount \$4,421.96 was expended for labor, and \$1,630.22 for stock. All of the horses at the South yard, together with the Street Cleaning Division horses stabled there, as also some of the horses located in the different stables of this Division, and of other divisions of this department, are shod at this shop, and for which the several divisions were charged the following amounts:—

Paving Division . . . . .	\$195 71
Sewer Division . . . . .	442 68
Street Cleaning Division . . . . .	1,541 55
Street Watering Division . . . . .	1 60
Central Office . . . . .	13 75
County of Suffolk . . . . .	48 75
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	\$2,244 04

Leaving balance of \$3,808.14 as cost to the Sanitary Division for this class of work.

These shops employ six horseshoers and helpers.

**Cost of Horseshoeing.**

		Division Shops.	Outside Shops.
Stock . . . . .	\$1,630 22		
Labor . . . . .	4,421 96		
	<hr/>		
		\$6,052 18	\$2,412 87

KINDS AND STYLE.	DIVISIONS.						TOTAL.
	Sanitary.	Street Cleaning.	Sewer.	Paving.	Central Office.	County of Suffolk.	
New shoes .....	6,528	3,009	1,148	354	63	139	11,241
Bar shoes.....	146	79	12	9	.....	.....	246
Resets .....	466	179	91	45	2	2	785
Leathers.....	1,415	727	233	112	6	40	2,533

Average cost per shoe, 45 cents.

Table showing the Number and Variety of Vehicles, etc., Belonging to the Several Divisions of the Street Department on which Repairs were made at the Shops by the Mechanics of the Sanitary Division.

From Jan. 24, 1896, to Jan. 28, 1897.

DIVISIONS.	Sanitary.....										Stamps Paidmeted.									
	Carts.	Half Moon and Iron Carts.	Market Wagons.	Street Wagons.	Street Watering.	Paving.	Bridge.	Central Office.	County of Suffolk.	Totals.....	Carts.	Half Moon and Iron Carts.	Market Wagons.	Street Wagons.	Street Watering.	Paving.	Bridge.	Central Office.	County of Suffolk.	Totals.....
Sanitary.....	370	2	10	...	168	10	7	28	1	1	1	1	1	1	1	1	1	1	1	1
Street Cleaning.....	27	.....	.....	8	.....	.....	.....	6	1	.....	15	.....	.....	.....	.....	.....	1	1	1	1
Sewer.....	1	12	.....	.....	11	6	17	10	.....	3	.....	.....	.....	.....	.....	.....	7	3	3	18
Street Watering.....	.....	.....	.....	14	.....	.....	.....	2	17	5	.....	4	.....	.....	.....	.....	3	4	2	1,170
Paving.....	25	.....	.....	.....	.....	6	2	.....	10	7	.....	.....	.....	.....	.....	.....	.....	4	15	4
Bridge.....	.....	.....	.....	.....	.....	8	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	1	1
Central Office.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	15	4	3
County of Suffolk.....	.....	.....	.....	.....	.....	18	80	24	1	3	4	15	4	4	3	4	21	6	150	1,190
Totals.....	423	14	10	22	168	35	18	80	24	1	3	4	15	4	4	3	47	21	6	150

**Table showing the Number of Articles and the Variety of Work Performed for the Several Divisions of the Street Department at the Harness Shop of the Sanitary Division.**

	Sanitary Division.	Street Clean- ing Division.	Paving Division.	Sewer Division.	Bridge Division.	Street Water- ing Division.	Central Office.	County of Suffolk.
Harness and parts of harness repaired.....	450	153	12	73	....	4	6	3
New parts of harness made,	365	67	2	14	2	2	2	3
New harness made.....	1							
Concord buggies repaired..	17	2	14	13	4			
Goddard buggies repaired..	12	....	4	5	....			4
Box buggies repaired.....	7	....	3	5	....			2
Express wagons repaired..	1	1	4	3	1			
Water carts repaired.....	....	9	2	....		1		
Sleighs repaired.....	6	1	4	7	....			1
Pungs repaired.....	1	....	1	3	....			
Horses numbered.....	223	99	109	96	11	1		
Saddle pads made.....	75	7						
Collar pads made.....	13	2	....	4				
Sweat collars made.....	34	2						
Poultee boots made.....	8							
Interfering boots made.....	2							
Muzzles made.....	1							
Carpet blankets made.....	40							
Blacksmiths' aprons made,	2							
Buffalo robes repaired.....	5	....	....	3	....		1	
Prison wagons repaired.....	....	....	....	....	....	....	....	2
Covers oiled.....	....	....	....	....	....	....	....	4
Carriage washers cut.....	....	....	18	20	12			
Whips repaired.....	2	....	....	4	....			1
Calking boots made.....	2	....	....	....	....			4
Two-seated democrat re- paired.....	2	....	....	....	....			
Cushions for office chairs...	5	....	....	2	....			
New strings of bells made..	136							
Shoe-boil boots made.....	3							
New halters made.....	20							
Rubber boots for Concord wagon.....	2	....	....	1	....			
New leather hose made .....	....	2						
Cushions for water carts,etc.	....	9						
Blankets repaired and shades covered.....	1	6	....	14	....			
Cover for scow cabin.....	1							
Hooks for paint shop cov- ered.....	4							

STREET DEPARTMENT — SANITARY DIVISION. 307

NUMBER OF SIGNS PAINTED AND DELIVERED SINCE JAN. 22, 1896.

375	Black and Gold,	Street and Ward.
4	" " White,	Street and Ward (sanded).
405	" " Gold,	Street.
38	" " White,	Street.
6	" " Gold,	Street Double Face.
20	" " "	Electric (Shaw's Patent).
25	" " "	Private Way.
198	" " White,	Private Way.
94	" " "	No Passing Through.
6	" " "	No Dumping Allowed.
2	" " "	Large Speedway.
1	" " "	Bridge Closed.
4	" " "	This is not a Public Dump. Police Take Notice (sanded).
3	" " "	No Admittance Except on Business.
1	" " Gold,	Swett street to South Boston.
1	" " "	Massachusetts avenue to Dorchester.
2	" " "	Marlboro street. No Heavy Teaming Allowed through Here.
1	" " "	Large Yard or District.
2	" " "	No Dumping Allowed Here.
1	" " "	No Dumping Allowed. (Sanitary.)
1		Large Yard or District.

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Table showing the Amounts Paid for the Different Kinds and Character of Work Performed by the Sanitary Division by the several Other Divisions of the Street Department and Others.

	Paving Division.	Sewer Division.	Street Cleaning Division.	Bridge Division.	Street Watering Division.	Ferry Division.	Central Office.	County of Suffolk.	City Engineer.	Totals.
Blacksmith and wheelwright work.....	\$1,813 32	\$660 62	\$372 04	\$279 71	\$168 75	\$50 00	\$123 14	\$169 69	...	\$3,637 27
Harness work.....	286 96	415 24	430 51	38 47	8 37	...	29 14	38 96	...	1,247 65
Painting.....	1,617 78	238 82	542 50	82 45	214 86	...	52 70	140 47	...	2,889 58
Horseshoeing.....	195 71	442 68	1,541 55	...	1 60	...	13 75	48 75	...	2,244 04
Use of dumping boats.....	...	83 70	4,794 97	...	...	...	...	...	...	4,878 67
Hay and grain, board of horses.....	22 44	38 46	10,210 19	...	3 20	...	...	624 00	...	10,898 29
Yard and stable, labor.....	...	...	3,678 61	...	...	...	...	416 00	...	4,094 61
Fuel, lights and water a <sup>t</sup>	11 22	19 23	926 41	...	1 61	...	...	...	...	958 47
Stables.....	...	...	25 75	...	...	...	...	...	...	25 75
Stable stock.....	...	...	...	...	...	...	...	...	...	71 00
Hired teams.....	...	...	215 11	...	...	...	...	...	...	215 11
Incidentals.....	...	...	...	...	...	...	...	...	...	...
	\$3,947 43	\$1,898 75	\$22,737 64	\$400 63	\$398 39	\$50 00	\$218 73	\$1,437 87	\$71 00	\$31,160 44

**Hay and Grain.**  
*Account of Hay, Grain and Straw Fed Out and Used from Feb. 1, 1896, to Feb. 1, 1897.*

YARDS.	Bales.	Bushels.	Pounds.	Total Cost.	Cost per Horse per Day.	Lbs. per Horse per Day.	Horses, Divisions; San. Street Cl.
South-Yard Stable.	2,499	19,317	573,761	\$5,287 46	\$123 48 2	13 3 7 5	27,608 13,614
		618,144	5,792 56	.14 2 1 4 8	14 4 1 2 0	14 4 1 2 0	41,222
		14,460	119 66	.14 2 1 4 8	14 4 1 2 0	14 4 1 2 0	
	426	83,839	807 31	.01 3 9 4 2	2 4 3 9 5	Average per day.	
		90,048	645 56	.01 3 9 4 2	2 4 3 9 5	76	
		4,935	29 61	.01 3 9 4 2	2 4 3 9 5		
		1,890	5 78	.01 3 9 4 2	2 4 3 9 5		
				.01 3 9 4 2	2 4 3 9 5		
				.01 3 9 4 2	2 4 3 9 5		
English Vegetable Food.							
Totals.....	2,925	20,925	1,387,077	\$12,687 94	\$30 3 2 1 3 4	33 2 6 7 5 1	
West-Yard Stables.	2,193	12,873	479,915	\$4,411 22	\$17 3 4 4 0	18 2 5 7 7	14,534 11,212
		411,936	3,824 66	.14 2 1 4 8	16	16	25,746
		5,700	43 75	.14 2 1 4 8			
		75,153	696 49	.02 1 8 7 4	2 3 5 7 0		
				.02 1 8 7 4	2 3 5 7 0		
				.02 1 8 7 4	2 3 5 7 0		
				.02 1 8 7 4	2 3 5 7 0		
				.02 1 8 7 4	2 3 5 7 0		
				.02 1 8 7 4	2 3 5 7 0		
English Vegetable Food.							
Totals.....	2,527	12,873	976,764	\$9,013 68	\$35 2 5 8	37 7 6 5 2	
						37 7 6 5 2	
						37 7 6 5 2	

**Hay and Grain.—Continued.**  
*Account of Hay, Grain and Straw Fed Out and Used Feb. 1, 1896 to Feb. 1, 1897.*

YARDS.		Bales,	Bushels,	Pounds,	Total Cost.	Cost per Horse per Day.	Lbs. per Horse per Day.	Horses Divisions: San. Street Cl.
Highland- yard Stables.	Hay .....	1,137	.....	258,711	\$2,396.33	\$13.39.14	14.56.29	15,555 1,808
	Oats .....	.....	8,342 $\frac{1}{2}$	266,960	2,499.43	.14.67.35	15.63.3	17,363
	Shorts .....	.....	.....	6,600	54.75	1.73.53	6.00.0	
	Straw .....	214	.....	44,560	417.70	.02.1.75.53	2.1.73.53	Average per day.
	Corn .....	.....	260	14,560	113.20	1.45.53.53	1.45.53.53	5
	Carrots .....	.....	.....	3,160	18.96	1.82.05	1.82.05	43
	Salt .....	.....	.....	90	25	1.72.05	1.72.05	
	English Vegetable Food .....	1 bbl.	.....	.....	15.00	1.13.63	1.13.63	
	Totals .....	1,351	8,602 $\frac{1}{2}$	594,641	\$5,515.62	\$31.33.09	\$41.29.99	
Charlestown- yard Stables.	Hay .....	693	.....	159,098	\$1,465.83	\$17.52.45	19.11.32	5,347 2,967
	Oats .....	.....	4,250	136,000	1,348.50	.10.83.14	10.83.14	8,314
	Shorts .....	.....	.....	3,700	29.47	1.63.35.53	1.63.35.53	
	Straw .....	93	.....	19,825	184.33	.02.83.14	83.14	
	Corn .....	.....	.....	.....	1,070	.....	.....	
	Carrots .....	.....	.....	.....	.....	1.00.2	1.00.2	
	Salt .....	.....	.....	.....	.....	.....	.....	
	English Vegetable Food .....	½ bbl.	.....	.....	7.50	7.50	7.50	
	Totals .....	786	4,250	320,293	\$3,045.65	\$36.52.61	\$384.33.61	

Hay and Grain.—Concluded.

*Account of Hay, Grain and Straw Fed Out and Used from Feb. 1, 1896, to Feb. 1, 1897.*

YARD.		Bales,	Bushels,	Pounds.	Total Cost.	Cost per Horse per Day.	Lbs. per Horse per Day.	Horses, Divisions; San. Street Cl.
South Boston Stable.	Hay .....	544	.....	110,112	\$1,006 98	\$20 18 58	221 38 86	4,942
	Oats .....	2,310	.....	73,920	690 25	.13 47 79	14 47 32	
	Shorts .....	.....	.....	3,060	26 41	2 61 11	2 06 00	
	Straw .....	31	.....	6,166	57 06	.01 76 42	1 49 42	
	Corn .....	.....	.....	.....	.....	.....	1 49 42	
	Carrots .....	.....	.....	1,550	9 30	9 30	1 55 00	
	Salt .....	.....	.....	140	70	4 70 00	1 40 00	
	English Vegetable Food .....	½ bbl.	.....	.....	7 50	7 50	4 94 25	
Totals .....		575	2,310	194,888	\$1,798 20	\$361908	392150	394912

## Recapitulation.

MATERIAL.	Pounds.	Cost.	HORSES PER DAY.		Number of Horses Fed.
			Cost.	Fed Out, Pounds.	
Hay .....	1,581,597	\$14,567	\$.1490564	1629215	67,986
Oats .....	1,506,960	14,155	.1497587	1543152	29,601
Shorts .....	33,720	40	.1497582	1543152	
Straw .....	229,483	274	.1497584	1543150	
Corn .....	104,608	2,162	.0297587	933210	
Carrots .....	758	76	.0297587	933210	
Salt .....	14,575	87	.0297587	234319	
English Vegetable Food .....	2,920	9	.0297587	234319	
	3 bbls.	45	.0297587	234319	
		00	.0297587	234319	
Totals .....	3,473,863	\$32,061 09	\$.3288325	3558318	

67,986 Sanitary horses (average number per day).....188  
 29,601 Street Cleaning horses (average number per day)....82      } at \$.3288325 = \$22,336.02  
 \_\_\_\_\_  
 97,587 horses (average number per day).....270      } 9,725.07  
 \_\_\_\_\_  
 \$32,061.09

## PLANT AND PROPERTY IN CHARGE OF THE SANITARY DIVISION.

*South City Stables, Shops and Sheds.*

Situated on Albany street, opposite Newton street. The lot belonged to the city before being used for this purpose, and contains 90,780 feet.

The stable and buildings connected therewith are brick. There are also on the premises five wooden sheds, used for storing wagons, etc. The stable is two stories high, with French roof, and has accommodations for 100 horses. Twenty-three horses are kept in sheds. Total original cost, exclusive of land, \$79,089.23.

Connected with stables are blacksmith, wheelwright, painters and harness-makers shops, in which the wagons, carts, harnesses, etc., used by the department, are constructed and kept in repair.

*Offal Depot.*

Erected in 1864, on the wharf fronting on Albany street, opposite Brookline street, on the other side of the dock from that used by the Paving Division. The lot which the building occupies, and the yard attached to the same contains 39,511 feet, and belonged to the city before being used for this purpose. Total original cost of building, \$18,578.89. This building is used for the deposit of house-offal daily collected in the city carts, and from which it is thence conveyed without the city limits by purchasers.

*West Stable and Sheds.*

The stable is a brick building, a story and a half high, 128 feet by 50, located on North Grove street, built in 1860, with suitable outbuildings attached to the same. It has accommodations for 83 horses, in stables and sheds. The lot contains about 45,152 square feet.

*Highland Stable.*

With accommodations for 68 horses, on the old Almshouse lot, Highland street, containing 81,082 square feet. A part of this stable and adjoining lot is used by the Paving Division. There is on this lot a brick stable, which cost \$88,594.13. On this lot is an offal-shed, erected in 1875, at a cost of \$1,160.12.

*Charlestown Stable.*

With accommodations for 25 horses, is situated on Rutherford avenue; lot contains 17,300 square feet of land; stable built in 1875, cost \$5,083.07; sheds and outbuildings built in 1879.

*Fort Hill Wharf.*

Containing 21,054 square feet, placed in charge of the Sanitary Division, used as a dumping station for the city's garbage and refuse, and as a landing place for scows, which convey this stuff to sea. There are two dumping-boats, known as the Barney dumping-scows, and these are in continual use for the above purpose, and are towed to sea by the Street Department steam tug boat "Cormorant." The tug boat is also used by the Sewer Division.

A portion of this wharf is used by the Street Cleaning Division as a locker for push patrol-carts, etc.; a part is in charge of the Paving Division, and a portion occupied by a tenant.

*Gibson Street Plant.*

Containing 42,000 square feet, and situated in Dorchester district, which has been used and occupied by the New England Construction Company for the treatment and disposition of offal, and which is now closed.

**Number of Carts and Wagons Collecting House-dirt, Ashes, and Offal.**

Offal wagons owned by the Sanitary Division	.	.	.	81	
" " in use " Thomas Mulligan, East Boston	.	.	.	6	
" " " " David B. Morrill, Brighton	.	.	.	3	
" " " " John McShane, Dorchester	.	.	.	10	
" " " " George T. Barnes, West Roxbury	.	.	.	3	
					103
Ash carts owned by the Sanitary Division	.	.	.	172	
" " in use " Wm. F. Hedrington, East Boston	.	.	.	6	
" " " " M. E. Nawn, West Roxbury	.	.	.	3	
" " " " John McShane, Dorchester	.	.	.	8	
Market wagons owned by the Sanitary Division	.	.	.	11	
					200
					303

**Capacity of Offal-Wagons.**

During the fall of 1892, 24 offal-wagons were measured and contents weighed for the purpose of obtaining the capacity of wagons and the weight of offal per cart load. Their capacity averaged  $3\frac{3}{4}$  cord feet, or 56.25 cubic feet, and the weight averaged 3,115 lbs. A cord equals 128 cubic feet, or 7,091 lbs. Price per cord for offal, \$4.00.

**ORGANIZATION.**

1 Deputy Superintendent.	5 feeders.
3 clerks.	7 messengers.
6 foremen.	6 stablemen.
1 captain of scows.	18 yardmen.
11 sub-foremen.	19 dumpers.
14 inspectors.	6 dnmping-boat men.
27 mechanics.	210 ash-cart drivers and helpers.
7 tallymen or aids.	140 offal-cart drivers and helpers.
5 watchmen.	

Total, 486 employees.

## APPENDIX E.

REPORT OF THE DEPUTY SUPERINTENDENT OF  
THE SEWER DIVISION.

PROBATE BUILDING, 28 COURT SQUARE,  
BOSTON, Feb. 1, 1897.

MR. BENJAMIN W. WELLS, *Superintendent of Streets:*

DEAR SIR : I respectfully submit report of expenses, income, and operations of the Sewer Division for the financial year ending Jan. 31, 1897; together with a statement of the present condition of the sewers and the other property in the charge of this division; the work done this year, and what should be done in the near future that the efficiency of the sewerage system of the city of Boston may be improved and maintained in proper condition.

Respectfully yours,

CHARLES R. CUTTER,  
*Deputy Superintendent.*

The Sewer Division has charge of the following work:

1. Construction and maintenance of all sewers and catch-basins.
2. Completion and maintenance of the Main Drainage Works.
3. Construction and maintenance of the channels of Stony brook.
4. Construction and maintenance of street culverts and surface drains.
5. Preparation of plans, and the engineering and supervision required on the construction and maintenance of all work connected with the division.
6. Investigation of complaints in regard to defective sewerage and surface drainage.
7. Granting of permits for all connections to be made with the common sewers, and the custody of bonds filed by drain layers authorized to make such connections.
8. Levying of assessments on estates benefited by the construction of sewers.

## ORGANIZATION.

The department is in charge of a deputy, who is also engineer of the Main Drainage Works which are connected with this division.

The engineering of this division is in charge of a chief engineer, who has supervision of the engineering and construction, and he has three assistant engineers in charge of the three divisions of the city; a chief draughtsman, a chief inspector, who has charge of the inspectors on contract and release work.

The chief engineer is held accountable for all work that comes under his supervision, all plans and estimates for new sewers and rebuilding of old sewers, and for all storm or relief sewers, surface drains, street culverts, and the connections between the common sewer and the intercepting system of the city or State.

In preparing these plans or estimates, it is often necessary to make forecasts of probable increases of population for long periods in the future, to avoid on the one hand spending an unnecessary amount of money at the present time, and on the other hand the building of sewers which will prove too small in the immediate future.

On the designing of enlarged channels for surface water, the same principles apply; a forecast of the probable development of the district has to be made for a reasonable period of time to determine the probable flood discharge, for which provision should be made, as this increases largely with the development. The duties of this division are not confined simply to actual work of construction, as the studies that are necessary for future work, or immediate work that money cannot be furnished for at present, have to be worked out in this division. It not only means a study which is different from other cities in this country, but it means a scientific adjustment of the present requirements with those of the future.

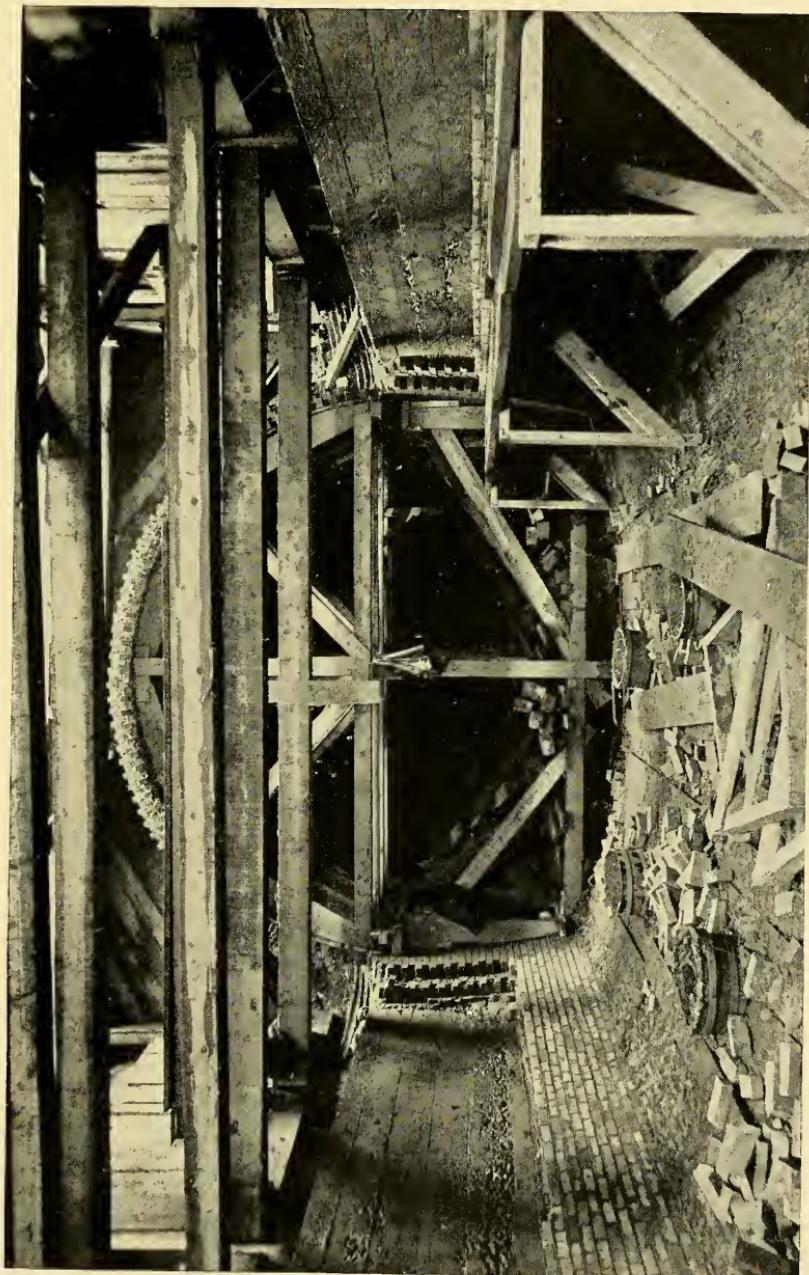
In the low parts of the city the sewers have to be designed for storage purposes during periods of high tides, as on most all the new made land parts of the city the average run of cellars is much below the possible high tides. The average tides of Boston are about grade 10, but at the same time we have to figure on the possible high tides which are apt to go to grade 14, and are known to have gone to grade 15. This makes a very complicated study, and especially in designuing the connections with the interceptor, because in case of high tides or floodings the interceptor shuts off, the water discharging through the outlets to the sea.

Also in designing sewers for the new territories which are to be developed, the division does not feel that it would be wise to design large sewers that would accommodate the future indefinitely; but they are designed so that they can be used for twenty or twenty-five years, and the amount of money that would be expended between that and the largest system saved to the city. The interest on this amount would often equal the original cost of the sewer, so that it might be actually cheaper at the end of twenty-five years to destroy the sewer built, and rebuild the size required at that time.

The clerical force is in charge of a chief clerk, who has charge of the finances, making of assessments, the granting of permits, the custody of bonds filed by drain layers, and the making and filing of plans showing the connections that are made of the whole sewerage system and house connections.

The city is divided into seven districts, each district being assigned to a foreman, who has charge of all the construction and maintenance work in his district.

The Main Drainage Works consist of the main sewer from its connection with the Metropolitan system at Gainsboro' street and Huntington avenue to the pumping station at Cow Pasture, the pumping station tunnel across the bay, the tunnel and its connection with the reservoirs at Moon Island, the reservoirs and outfall at this place, together with the regulators, connections, and branch interceptors of the common sewers with this system.



STONY BROOK CONDUIT, COLUMBUS AVENUE.



The care and maintenance of this system is in charge of three foremen, one of whom has charge of the pumping station and work at Cow Pasture, one has charge of the reservoirs and outfalls at Moon Island, and one has charge of the main drain, the gates and connections on the main drain and the interceptors; also of the regulators and connections in East Boston and Charlestown with the North Metropolitan system.

The workings of the Main Drainage System have been under discussion for the last year, as can be seen by the Superintendent's report. The history of the Main Drainage will be found later on in this report.

There is also connected with this division the tow boat "Cormorant," which is used for the towing of sludge from the pumping station at Cow Pasture. When not employed in this work, it does the towing of garbage scows for the Sanitary Division.

Stony brook is in charge of a foreman who looks after the maintenance of the brook. During the present year, during the reconstruction of the channels of Stony brook, we have a separate force under a resident engineer.

There are at present about eight hundred (800) men employed in the Sewer Division. The work of this division for the last year has been very extensive, more men being employed, and more money expended for the construction of sewers than in any previous year in the history of the division.

Owing to the growth of the city, especially the suburban districts, the work of this division has increased rapidly in the last few years, and the demands on the division are more and more; but notwithstanding this it is impossible to obtain the money necessary for the proper maintenance of the division. The City Council does not furnish this division with the proportionate increase of appropriation for maintaining the ever-increasing mileage of sewers; and if the City Council is not able to furnish the necessary money to maintain, clean and flush the sewers and clean the catch-basins, the only remedy is to make the division a self supporting one, provide it with an income, and put it on the same basis as the Water Department.

The following table shows the maintenance appropriation of this division for the past five (5) years:

1892	.	.	.	.	.	.	\$350,000 00
1893	.	.	.	.	.	.	350,000 00
1894	.	.	.	.	.	.	320,000 00
1895	.	.	.	.	.	.	300,000 00
1896	.	.	.	.	.	.	280,000 00

Some of the difficulties and problems considered by this division are the following: There is a great deal of trouble in this division on account of sewer assessments, as it is very hard to convince an abutter, who happens to have a trunk sewer constructed in front of his house, and is assessed at perhaps \$2 or \$2.50 per front foot, and receives only the benefit of sewerage for a couple of persons, that there is anything equitable in assessing the estate at this rate, when another abutter on a side street where only a pipe sewer is built, is only assessed perhaps \$1.15 or \$1.25 per front foot, and yet furnished with drainage for ten or a dozen persons. This is a hard problem to solve, but the city of Boston in the last fifty years

has tried all conceivable laws for assessment, both by area and front foot, yet none have been found to be satisfactory.

The question of surface drainage in the outlying districts: The surface drainage of Boston is in such a condition, in the outlying districts, especially, that it became a problem for extensive study during the past year. This subject will be discussed later on.

The need of proper ventilation of the sewers. An article on this subject will be found later on.

The legal grade of cellars: The building laws of the city of Boston give a man the right to build his cellar at grade 12, when the tide frequently rises above this. No cellar should be built in Boston lower than grade 14.

The grade of sewers in the residential portions of the city: The sewers are hardly ever built lower than eight or nine feet from the surface of the street. This will furnish all proper drainage for the common run of cellars; but as the residential portions of the city change to the business portion, the cellars are put in deeper, and there is no law to stop it, and then the parties apply for a low-grade sewer. In reconstructing these sewers to fit the low grade, generally twenty or thirty estates are passed, and the parties receiving no actual benefit are assessed, and they generally object to paying for the benefit of some individual above them. I think there should be a law fixing the legal depth of cellars below the grade of the street in front of the premises, and when cellars are put in at a greater depth than that prescribed by law, and the sewer is rebuilt to accommodate these low cellars, it should be paid for by the parties benefited.

The work that is done by drain-layers: The aim of this division has been to build tight sewers for house drainage, so as to prevent ground water from finding its way into the sewer system and increasing the volume of pumpage; generally these sewers run in the centre of the street. A party applies for a house-connection which may be anywhere from twenty to forty feet in length. The house-connection is put in by a drain-layer, over whom this division has no control except in making the connection where it joins the sewer. Of course, everybody is anxious to put it in as cheaply as possible, and in doing this they are very apt to put in a leaky connection. I think that this division ought to make all connections up to the house, charging the individual for so doing.

In connection with the above, we should have the right to compel stables, factories, or other parties that use a sewer, and use material and matter that is detrimental to the sewers, to put in catch-basins or settling-tanks to settle this débris before it enters our sewers.

This division should have the right to have inspectors enter buildings and inspect the quality of the sewage that they discharge into our sewers.

During the last year the City Council authorized a number of loans for sewer construction, thereby enabling this division to proceed with work that had been contemplated for a long time as follows: The starting of the Canal-street sewer system, which is going to relieve the North End; the Shamrock-street outlets, which will relieve the interceptor at this point and prevent the flooding of cellars in this neighborhood.

The large outlet which discharges into the South bay, known as the B and Seventh-streets outlet, and is the beginning of the relief



**STONY BROOK CONDUIT—SHOWING ROCK EXCAVATION NEAR HOG BRIDGE.**



for the sewer system of the lower end of South Boston. In conjunction with this it will be necessary for the government to provide money to extend this system up Dorchester avenue, from B to Dorchester streets. This, with the building of the sewers in D, Dorr, Dexter, and Ellery streets, will furnish relief for this neighborhood; the Guild row relief sewer and the rebuilding of the Dorchester brook from Norfolk avenue to George street.

The pumping-plant, known as the Lyons-street pumping station, is now in working order. This furnishes relief for what is known as the Lauriat-avenue and Forest-avenue system of sewers, and it enables the people in this district to get proper drainage.

Connections with the Metropolitan system in Charlestown and East Boston.

The overflow on Congress street, from Atlantic avenue to the Fort Point channel, has been constructed to take the place of the old Pearl-street overflow, which was cut off by the filling in of Russia wharf dock.

#### SOUTH BOSTON.

The rebuilding of the B and Seventh-streets overflow outlet, now about two-thirds completed, will afford relief to the sewers in a large part of Wards 13 and 14, which, on account of the insufficient size of the outlet, were flooded at every heavy storm. Many of the sewers in the area drained by this outlet are, however, in very poor condition, or of too small size; and those in the following streets should be rebuilt as soon as money can be provided:—

- B steeet, between Dorchester avenue and Fourth street.
- Gold street, between B and C streets.
- Gold street, between C and D streets.
- Silver street, between C and D streets.
- Silver street, between B and C streets.
- Silver street, between Dorchester and G streets.
- West Fourth street, between C and E streets.
- West Fifth street, between B and F streets.
- West Sixth street, between B and D streets.
- West Seventh street, between B and D streets.
- West Eighth street, between D and E streets.

The sewers in the following streets are also in very poor condition, and liable to cause trouble at any time:—

- Athens street, between E and Dorchester streets.
- Bolton street, between B and D streets.
- Bolton street, between D and E streets.
- Bolton street, between E and Dorchester streets.
- Dove street, between F and Dorchester streets.
- D street, between Second street and Broadway.
- East Fourth street, between Dorchester and E streets.
- East Fourth street, between O and P streets.
- East Second street, between K and L streets.
- East Fifth street, between H and K streets.
- Jenkins street.

A sewer is needed in Dorchester avenue, between B and D streets, and the sewer in Dorchester avenue between D and Dorchester

streets should be rebuilt. This will enable the overflow from D street, and from all sewers draining into Dorchester avenue, north of Dorchester street, to discharge by means of the B and Seventh streets overflow, which was designed large enough for that purpose.

The D-street sewer, which is now in very poor condition between Dorchester avenue and Eighth street, can then be rebuilt in such a manner as to do away with the flooding of the street under the Old Colony Railroad, which occurs whenever heavy rain falls at high tide.

The sewers in Dexter and Ellery streets are in a ruinous state. Complaints are constantly received regarding the condition of these sewers, which have settled and become so distorted that the cleaning rods cannot be pushed through from one manhole to the next. In its present condition the sewer is nothing but an elongated cesspool. Temporary relief can be obtained by a frequent flushing, but not until the completion of the sewer in Dorchester avenue above mentioned, can any permanent relief be obtained.

The sewer in Mercer street should be rebuilt of a larger size, and thus prevent the flooding of cellars in that locality.

A sewer is badly needed in Dorr street to do away with the nuisance existing in that neighborhood.

The Kemp-street outlet is almost useless in its present state; the arch and side walls having fallen in for several hundred feet. The entire structure should be rebuilt at once, of sufficient size to serve as an overflow for the South Boston Interceptor, which has no proper overflow when the regulator at the main sewer is closed.

It is a question whether it is advisable to build this overflow large enough to act as an outlet for the Dorchester brook sewer, when it becomes necessary to extend the latter, but with our present knowledge of the extent to which South bay will be filled in, it seems at this time unwise to expend the extra amount necessary to make the Kemp-street outlet answer this purpose.

There are many sewers in South Boston where the manholes are so far apart that the cleaning rods cannot reach the entire distance between them; also many cases where there is no manhole at the upper end of the sewer, and therefore no means of flushing in a satisfactory manner. Money should be provided to remedy these defects.

#### *Work done during the year.*

Two thousand eight hundred and ninety-eight (2,898) linear feet of sewers were built by the city by day labor; nine hundred and seventy-nine (979) linear feet were built by private parties and released to the city.

#### EAST BOSTON.

The work of connecting sewers in this district with the Metropolitan sewer system was begun last August, and is being carried on with all possible despatch. The original estimate for the connections with this system was forty-seven thousand dollars (\$47,000), twenty-three thousand dollars (\$23,000) of which were provided last year. It will be necessary for the City Council to authorize the other twenty-four thousand dollars (\$24,000), so that this work can be carried on with despatch and finished this summer.



KEMP-STREET OUTLET.



The house sewage system of East Boston depends wholly on the Metropolitan sewer system for outlets, and in designing the intercepting system the necessary branches to make the connections with the different drainage areas and their interceptors were not in all cases put in, and there are a number of areas for which, as yet, no provisions have been made.

I wish to call your attention to a few of the defects of the present system.

The interceptor on the west side of East Boston was built at an unnecessarily high elevation, its end at Condor and Meridian streets being at grade 13.2, and as the abutters had a right to build their cellars at grade 12, the existing houses on Meridian street, between Condor street and Chelsea bridge, cannot be drained in a satisfactory manner.

No intercepting sewer has been built by the Metropolitan Sewerage Commission to take the outlets at Eagle square and Glendon and Putnam streets, bordering on Chelsea creek. This ought to be constructed immediately for the relief of this district.

On the south side of the island is a considerable area sewered on the combined system, and draining through the Moore-street outlet. No means have been provided by the Metropolitan Sewerage Commission for dealing with the sewage from this area. Money should be provided for building this system of sewers immediately.

The Act under which the Metropolitan Sewerage Commission was created, namely, chapter 439 of the Acts of 1889, states in sect. 3: "Said Board shall construct . . . which systems shall be in substantial accordance with the plans reported and recommended by the State Board of Health in its report to the Legislature of 1889." In the report alluded to, which is Senate Document No. 2, it is stated on page 105 that "Breed's Island and the portions of East Boston north-east of Swift street now have no sewers except in Moore street and a street crossing it. In the whole of this territory it is proposed to exclude storm water from the sewers."

This statement was correct as far as Breed's Island was concerned, but the area drained by Moore-street outlet had at the time this report was made about five thousand (5,000) linear feet of sewers, or about one-third the total amount it will contain when the area is fully developed.

These sewers were all designed on the combined system, and since 1889 all extensions have been made on the same plan. There seems to be no good reason for changing to the separate system, and yet with this area practically under the combined system at the time the Metropolitan Sewerage Commission designed their sewers, they now inform us that we must have separate drainage for our surface water, and that we cannot drain even roof water into their sewers. It seems as though the city and the Commonwealth ought to revise these statements, and compel the Metropolitan Sewerage Commission to provide a branch interceptor for the present system of this district, and all future construction should be on the separate system.

At Orient Heights there is an area of about 300 acres of low-lying territory, to drain which it will be necessary to build a low-level sewer, from twenty to thirty feet deep, and about one and one-half miles in length, extending back to the East Boston pumping station of the Metropolitan sewerage system at Chelsea and Addison streets. This should have been built by the Metropolitan Sewerage Commis-

sion at the time of construction of the main sewer, and they ought to be compelled to build this immediately, so that we could enjoy the benefits of connection with this portion of the Metropolitan system for which we are paying at the present time, or we should receive an abatement on account of not receiving any service for this portion of East Boston. Numerous petitions have been received during the year for sewers in this district, which cannot be built until this low-level sewer is constructed.

At the present time the amount of money paid by the city to the State for pumping the sewage on the North Metropolitan system, is based on population for the maintenance item, and on valuation for the item representing interest and sinking fund; and as we are paying our proportionate part for the whole of East Boston on this basis, you can see by the above statements that we are not being used in a fair manner, as the Metropolitan Sewerage Commission has failed to provide us with the necessary outlets to drain this territory.

The following sewer outlets, which are now in a very dilapidated condition, should be rebuilt. They will be used for storm-water overflows, when the areas which they now drain are connected with the Metropolitan sewer: Jeffries street, Sumner street, Putnam street and Porter street. Outlet at Dock 13 should be extended about four hundred and fifty feet.

The Porter-street outlet is in a particularly bad state, and as the open space between the B., R. B. & L. R.R. and the sea wall, about two hundred feet south-westerly, is being filled in, the overflow from this outlet in time of storm will be retained in the basin, formed by the railroad, Wood Island Park, Bremen and Maverick streets. The outlet should be extended to the open water beyond the sea wall.

The time is not far distant when it will be necessary to take some action regarding the drainage of the land owned by the East Boston Company, between Bremen street and the B., R. B. & L. R. R. Company. Streets have been built on this tract for some years and several houses have been erected. Considerable study has been given to developing a proper system of drainage for this tract, and a well-considered scheme has been evolved.

In view of the fact that a large amount of water will be encountered in building these sewers, it would be to the advantage of the city to build them, and assess the cost on the owners of the land rather than to have them built by the owners and released to the city.

A sewer should be built in Chelsea street, between Curtis street and the bridge. This will afford an opportunity to drain Pope, Chaucer and Curtis streets, which are badly in need of sewers. Sewers are also needed in Wordsworth street, between Saratoga and Pope streets, and in Ashley avenue, between Bennington and Breed streets.

#### *Work done during 1896.*

Connections have been made with the Metropolitan sewerage system at Meridian street, near Condor, Bremen street, near Porter, and Border street, near Decatur. Twenty-nine hundred and ninety-seven (2,997) linear feet of sewers were built by the city by contract and day labor.

## CHARLESTOWN.

The work of connecting the city sewers with the Metropolitan sewerage system has been begun, and is being carried on as rapidly as possible. In order to complete this work during the coming year, nineteen thousand dollars (\$19,000) will be required in addition to the amount now on hand.

The Beacham-street district, bounded by Main and Alford streets, Mystic river and the city of Somerville, should be connected with the Metropolitan sewer system. The existing sewers in this district can be used for storm-water outlets; and pipe sewers, to carry house drainage only, should be laid to connect with the Metropolitan system. About six thousand (6,000) feet of pipe sewers will be required for this; and in those streets where there are at present no sewers, about three thousand (3,000) feet of surface drain will be needed.

Complaints are made every year regarding the backing up of sewage in the Cambridge-street sewer. This is due partly to the small size and flat gradient of the sewer itself and partly to the insufficient size of the outlet in Beach street. The outlet should be built of proper size, and also the sewer as far as the junction of Perkins and Kingston streets.

The sewer in Rutherford avenue, between Dunstable and Beacham streets, is in a very defective state, and requires rebuilding.

During every heavy storm the sewers in the vicinity of Tibbetts townway and Rutherford avenue have given trouble. This is caused by the fact that the Rutherford-avenue outlet is too small, and the sewers in Tibbetts townway and adjacent streets are not only too small but are in a tumble-down condition. The trouble can be partially remedied by rebuilding the sewers in Tibbetts townway, Lyndeboro' and Middlesex streets, and a part of Essex street. A complete removal of the trouble will necessitate building a large storm-water outlet, parallel with the present Rutherford-avenue outlet. Estimates of cost for this have been prepared.

There are at present some twenty (20) streets in Charlestown which contain about eight thousand (8,000) feet of slate, wood and brick sewers. These were built many years before the annexation of Charlestown and are of a type long since condemned by experts in sewer design. Money should be provided for replacing these with pipe or brick sewers as may be required.

*Work done during 1896.*

One thousand and thirty (1,030) linear feet of sewers have been built by the city, and the connections with the Metropolitan system have been made at Alford street and at Chelsea near Vine street, all by day labor.

## BRIGHTON.

Sewers have been called for in the tract owned by the Westminster Land Company, south of Union street and east of Chestnut Hill avenue. These streets will drain partly into Commonwealth avenue, at points where at present there are no sewers or surface drains and where the avenue has not yet been constructed to more than one-half its full width. The remainder will drain into Chestnut Hill avenue. This latter part presents some features for consideration.

If we build sewers on the combined system we carry into the existing sewers in time of storm, an amount of water which they are totally unable to carry on account of their insufficient size. If we build on a separate system, connecting the surface drains with the brook, which rises near Union street, we meet with a similar difficulty, since the brook itself is taken into the sewer in Shepard street. The remedy for the latter evil is discussed in another part of this report.

Sewers should be built during the coming season in the streets laid out by the Aberdeen Land Company, between Commonwealth avenue and the town of Brookline. As these drain into a part of the town of Brookline, where the sewers are on a separate system, it will be necessary to design our sewers on the same plan.

Two brooks flow through this territory, which have for part of their lengths been taken into covered channels, and can be used as outlets for the surface water system.

As mentioned in previous reports, a sewer should be built from Buffalo street to Everett street to take the drainage of the stock yards into the Everett street sewer, instead of allowing it to enter the brook as at present.

#### *Work done during 1896.*

The sewers and surface drains for the Commonwealth-avenue boulevard have been completed, and the outlet to Lake street is under contract.

House sewers and surface drains have been built in North Harvard street, between the Metropolitan sewer system and the Charles river, and in Holmes avenue, between Harvard avenue and Warren street.

Twenty-two thousand four hundred and sixty-six (22,466) linear feet of sewers and surface drains have been built by the city under contract or by day labor. Two thousand and sixty-nine (2,069) linear feet have been built by private parties.

#### WEST ROXBURY.

The West Roxbury low level sewer will be completed to Boylston station during the coming year. Estimates have been made for extending it from that point as far as the Hyde Park line. This extension is very necessary in order to obtain drainage for a number of streets which are at too low a grade to be accommodated in any other manner.

Sewers are very much needed in the following streets in the Mt. Hope district: Florence, Sycamore, Brook, Sherwood, Ridge and Garden streets and Prospect and Brown avenues. The outlet for these will be through a projected street into the Washington-street sewer, near the junction of South and Washington streets. These sewers are designed on the separate system; the surface water to be taken into the brooks in the vicinity.

The Neponset valley intercepting sewer now being constructed by the Metropolitan Sewerage Commission will be nearly, or quite completed during the coming season, and will afford an outlet for the drainage of about sixteen hundred (1,600) acres, lying south of the city of Newton and east of Charles river. As the Neponset valley

sewer is designed to carry only house sewage and will have no overflows it will be necessary to design, on a separate system, all sewers draining into it; and all storm water must be rigidly excluded. This can be easily accomplished, as no sewers are yet built in this area.

As the East Boston and West Roxbury low level sewers will be built with the idea of excluding storm water altogether, an ordinance should be passed, forbidding under heavy penalties, all house owners from entering roof water into the house drains or sewers, and ordering all roof water to be entered into the surface drains. It will of course be necessary for the city to provide surface drains throughout the whole length of the streets for this purpose.

A system of sewers should be begun during the coming season in that part of the district in the neighborhood of Spring street, as a considerable quantity of sewage at present flows into the Spring-street brook, and thence finds its way to Charles river, entering above the points where several cities and towns obtain their water supply.

A system of surface drains will very soon be required for Hewlett and Arundel streets and the vicinity.

Bordering on Hyde Park and bounded on the west by Stony brook reservation, is a tract of about three hundred and sixty (360) acres which drains naturally into Hyde Park.

In the studies made by the Metropolitan Sewerage Commission it was intended; to drain about half this area into what is called the Clarendon Hills branch of the Metropolitan system. No provision was made for the remainder; but to drain it in any other way than by means of this branch would put the city of Boston to large unnecessary expense.

A conference was held in January between the Deputy Superintendent of the Sewer Division, the Metropolitan Sewerage Commissioners and the chairman of the Hyde Park Sewer Commission regarding the advisability of building this branch at an early date; but no definite agreement was made. It appears to be the intention of the Metropolitan Sewerage Commission to leave this branch to be built by the town of Hyde Park, and as that part of the town is not developed to any great extent there will be no necessity to build a sewer there for some time to come. As, however, the area lying in Boston is partially developed, and has one school-house, accommodating some 500 scholars, it would seem that means for connecting with the Metropolitan system should be provided by the building of this branch under the supervision of the Metropolitan Sewerage Commission; otherwise, if the area is not drained until the building of this branch is necessitated by the requirements of Hyde Park or until the high level sewer, so called, is built, the residents of this part of West Roxbury cannot have proper drainage for a period of at least four years, and probably more.

#### *Work done during 1896.*

Fifteen thousand nine hundred and thirty-six (15,936) linear feet of sewers, surface drains and culverts were built by the city by contract and day labor, and ten thousand two hundred and forty-two (10,242) linear feet of sewers and surface drains were built by private parties and released to the city.

## DORCHESTER.

In discussing the drainage of Dorchester there are several considerations to be taken into account, both of the natural formation of the territory, and of the history of the work that has been already done.

As regards the natural formation of the territory, the district is now made up of valleys, gently rising from the surface of Dorchester bay and the Neponset river, for a large part of the way and at the upper end rising more abruptly to the dividing ridges eighty and one hundred feet above tide water.

The western third of the district, however, is peculiar in this respect, in that it forms the head waters of a branch of Stony brook, draining naturally in a westerly direction by Forest Hills and Jamaica Plain to Old Roxbury and the Back Bay.

The ground on these head waters of Stony brook is swampy, and about fifty feet above tide water. Owing to the great distance to be traversed in following down the natural but sluggish slope of Stony brook, and owing to the fact that the territory to be traversed in that direction is almost unsettled, and not calling for any drainage at present, it becomes almost necessary to carry the drainage of both house and surface water easterly through the dividing ridge into Dorchester bay.

As to the history of what has been already done :

When Dorchester was annexed, twenty-five years ago, it was practically entirely destitute of any system of sewerage, although parts of it were as thickly settled and as long inhabited, as were many parts of the older Boston (including Roxbury), which had been sewered for a generation or more.

With the small appropriations available for a remote suburb, it became necessary to spread comparatively little money over a large area. Probably the only solution practicable was the one of building a combined system of sewers, capable, in addition to the house sewage, of taking a considerable amount of storm water, say perhaps on an average not far from one-tenth of the expected rainfall.

This system worked very well in the infancy of things, and has continued to work fairly well in most places up to the present time. But the growth of this suburb has been so rapid of late years, the number of new streets laid out so large, and the standard of street comfort held by the average citizens so much elevated, that it is evident that such a system cannot be continued indefinitely in the future; in fact, that the time has already come in many places when a change must be made.

Each suburb now vies with its neighbor for the cleanest and smoothest streets, and the quickest removal of surface water during storms. The number of catch-basins has greatly increased; and while this does not mean that more rain will fall on a given territory than before, it means that more of it must find its way to the sewers, when formerly it spread itself over unsettled territory and vacant lots.

To illustrate how inadequate the old sewers in Dorchester must be to carry off all the storm water (an inadequacy which they share generally with combined sewers as built in most cities and towns of this and other countries) I will give a few specimen figures as to the probable rainfall to be expected in several localities in Dorchester, and also of the amounts capable of being handled by the existing combined sewers.

## DORCHESTER.

NAME OF SEWER.	Demand at 1.3 inch Rainfall cubic feet per sec.	Demand at 2.3 inch Rainfall cubic feet per sec.	Demand at 1-inch Rainfall cubic feet per sec.	Present Capacity cubic feet per sec.
<i>Crescent-avenue Sewer.</i>				
Spring Garden street .....	.....	.....	57	11
Improved sewer ..	.....	.....	60	10
<i>Pleasant Street, Glover's Corner, and Hancock-street Sewer.</i>				
Dorchester avenue, at Creek street...	.....	.....	75	37
Dorchester avenue, where it empties..	.....	.....	216	49
<i>Shamrock-street Sewer.</i>				
Dorchester avenue, at Linden street ..	.....	.....	24	6
Adams street, at Dorchester avenue ..	.....	.....	39	23
Dorchester ave., at Shamrock street ..	.....	.....	48	31
<i>Talbot-avenue Sewer and Outlet.</i>				
Blue Hill avenue .....	97	193	290	31
Bernard street <sup>1</sup> .....	108	216	324	20
Washington street .....	292	584	876	25
<i>Centre-street Sewer.</i>				
Shawmut Branch Railroad .....	317	633	950	41
Centre street, at Dorchester avenue...	330	660	990	15
Dorchester avenue, at Centre street...	331	662	994	47
Dorchester avenue, at Dix street .....	338	676	1,014	59
Dorchester avenue and Gibson street..	416	832	1,248	30
Gibson street, at Adams street .....	476	952	1,428	34
Adams street, at Park street.....	476	952	1,428	30
Park street, at Clayton street .....	478	956	1,434	30
Clayton street, at Greenwich place....	493	986	1,479	30
<i>Neponset-avenue Sewer.</i>				
Neponset avenue, cor. Taylor street ...	16	32	48	17
<i>Granite-avenue Sewer.</i>				
Minot street .....	147	294	441	15
Milton branch .....	156	312	468	25

It will be seen from these figures that the limit of availability of the existing sewers for storm water would be very soon reached, if indeed it has not already in many cases been exceeded.

<sup>1</sup> Below Washington street the areas include the whole of that part of the Stonybrook valley draining into Talbot avenue.

There would be practically two remedies for this state of things. One would be to rebuild, at an immense increase of size, and at great inconvenience, the present combined system; making it large enough to take all the storm water of the future.

There are many reasons why this cannot well be done.

One is that the cellars or the private drains from them are generally quite near the level of the existing sewers; consequently, if the size of the sewers was to be doubled or quadrupled, or even more, the new sewer would have to be sunk entirely below the level of the old one in order to avoid flooding the cellars. This would very much increase the expense.

Another is the general inconvenience to, and partial interruption of, the old house service, while rebuilding it anew.

A third is (now that all house sewage is intercepted and pumped out to Moon Island) the increased difficulty of separating the storm water and house sewage in time of flood, leading to pollution at the overflows, even with costly and cumbrous appliances for its attempted prevention.

For these, and many other reasons of a professional nature, it is considered impracticable to enlarge the present combined systems for the wants of the future; and recourse must be had to a separate system of storm sewers, or as they may be better called, surface drains.

It will be seen from the preceding table that the existing sewers will accommodate but a relatively small percentage of the surface water; probably generally not more than five per cent to fifty per cent, or an average of twenty-five per cent.

The capacity of the existing sewers can of course be very closely calculated by well approved methods; for the purpose of this report, however, they have been hastily taken at an approximate value.

The amounts of storm water coming from each district, on the other hand, can never be absolutely calculated in advance. It may be known how many inches of rain have fallen on a given territory in the largest storm of which we have any record; but this division can never be sure that it would not be exceeded by some future storm. The exceptional "great" storms which do such great damage occur twice or three times in a century.

Even if this division was sure of the maximum future amount of rainfall there would be no means of absolutely deciding how much of this will reach the mouth of a sewer or surface drain in any given time; this depending on the slope, roughness, and other qualities of the ground. Various observations have been taken to try and determine the effect of these various factors; the conclusions reached by the Swiss engineer, Bourkli-Zeigler, have met with wide acceptance. His estimate of the percentage of rainfall reaching any one point at one time varies from ninety-five per cent on small tracts of a few acres, with a sharp slope, to ten per cent on level tracts of several square miles. His estimates for tracts of medium size and slope, such as we find in Dorchester, would vary from thirty to sixty per cent, usually we might say about fifty per cent.

As the rainfall for short periods is at the rate of as much as from two to three inches an hour, it does not seem extravagant to use an inch of rain per acre per hour as the maximum for computing the sizes of surface drains.

It happens, curiously enough, that one inch of rainfall per hour gives almost exactly one cubic foot per second per acre, which is the maximum used in the foregoing table.

It would seem, therefore, that beside the advantage of cutting off all the sewage from the shores of the harbor, which now runs on to them during storms, that we must inevitably be driven to the use of surface drains for the water from the catch-basins, because the existing combined sewers are only adequate to take one-tenth, one-fifth, or one-half of it, as the case may be.

It has always been considered a part of the scheme for intercepting the sewers of Boston that a "high-level" sewer would be built, which would intercept the sewage from the high streets in the interior of the suburbs, and carry it direct by gravity to Moon Island, without the expense of pumping it up.

The engineers of the Metropolitan Sewerage Commission have made a study for such a sewer for Dorchester, which would include about 950 acres of the west part of Dorchester, or about one-third of the whole district.

Of course, it would be essential to the working of such a sewer (the size of which must be quite limited) that the house-sewage must be separated from the rain-water. This separation would be physically possible by means of overflows into the brooks, but in order to avoid all possibility of nuisance, it would seem to be better that a new set of surface drains should be made, to take the water from any catch-basins that now go into the combined sewers, and that all new sewers within this high-level district should be built on the separate principle.

The system, then, which is looked forward to for Dorchester is a separate system of surface drains, large enough to take all of the storm-water that experience and theory combined lead us to expect from the areas they serve. The existing sewers to be retained for house-sewage, and also for such moderate quantities of storm-water as they can easily carry, and will serve to keep them clean.

All new sewers for house drainage in this way will be constructed of small pipes, usually of ten, twelve, or fifteen inches in diameter. The surface drains would often have to be of brick or concrete, often ranging from two to five feet in diameter, and even larger in exceptional cases, and near tide water.

The surface drainage problem for Dorchester will be found fully discussed in the article on Surface Drainage.

The subject of new house sewers for immediate use in Dorchester is a very complicated one. The district has grown so rapidly that the division has not been able to furnish the amount of sewers that have been called for, so that the vicious system of allowing the abutter to build release sewers has been carried on to quite an extent in this district. This, in my opinion, is a bad system, which will be discussed later on.

To take up some cases where house sewers are required, in geographical order from north to south, the first case is an outlet from Wesley and Savin Hill avenues on the north side of Savin Hill. This has been petitioned for for several years, and is much needed to remedy unsanitary conditions, and to complete the drainage of that whole district, which is otherwise well supplied.

Another case of house sewers needed at the present moment is that of those in what is called the Forest-avenue district; in streets which

have been long settled, and suffering for want of sewers, but which it has only been possible to sewer properly since the completion of the Lyons-street pumping station. These streets, embracing Morton, Selden, Fuller, Capen, Evans, Maxwell, Corbett, Nelson and other streets in that immediate neighborhood, should be sewerized as soon as practicable during the coming season, as it has long been a pressing necessity.

The pumping station at Lyons street has been designed with a liberal factor of safety, so as to be capable of pumping up, not only the legitimate amount of house sewage due to the future probable number of inhabitants, but also a moderate amount of leakage, or of other storm water accidentally finding its way into the house sewers. But for an outlet it has to depend at present on the old sewer in Talbot avenue, which was not designed to meet any such emergency, and which would prove of much too limited capacity in case the amount pumped at Lyons street should seriously increase. I would state that this plant at Lyons street is only designed for a temporary relief, as eventually the only remedy for this district will be the construction of a large tunnel sewer through the dividing ridge to Dorchester bay, allowing the sewage to flow by gravity to the Dorchester Interceptor.

#### *Work done during 1896.*

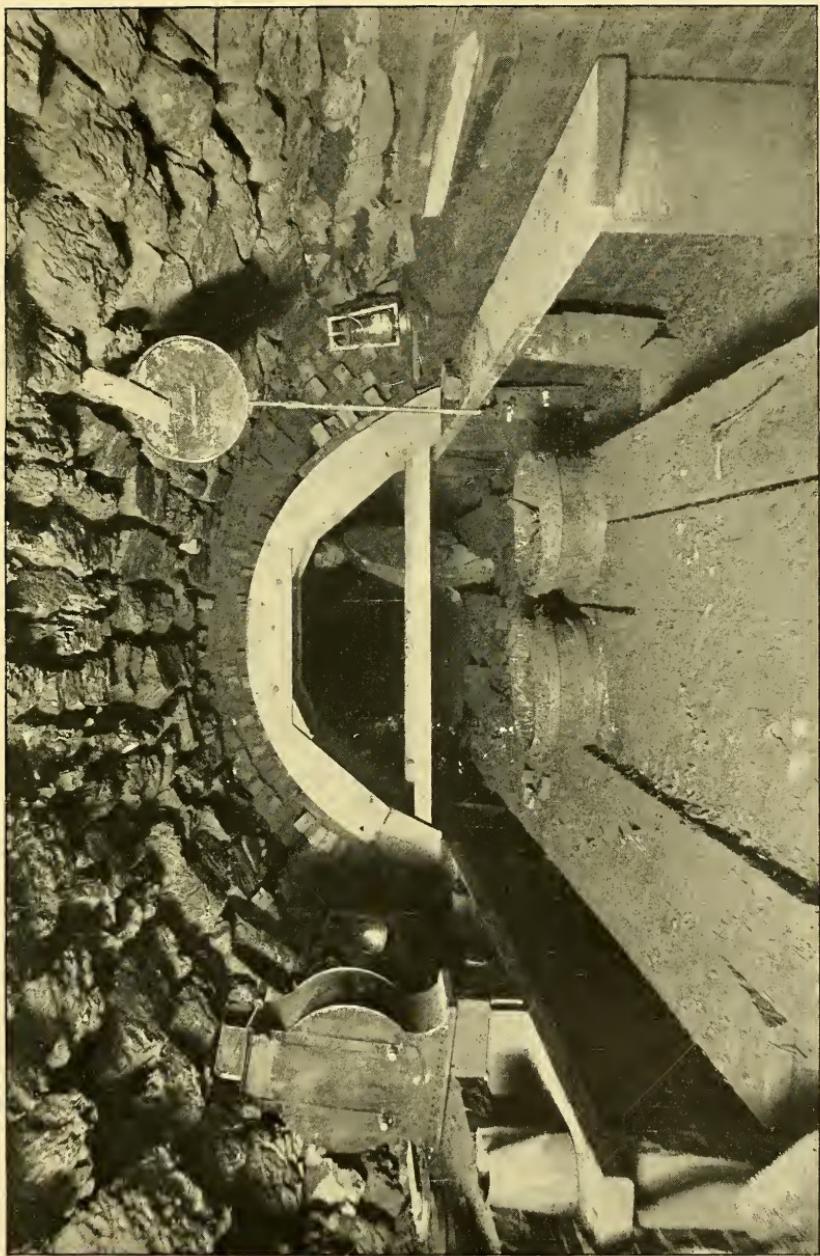
Forty-three thousand four hundred and fifty-three (43,453) linear feet of sewers and surface drains were built by the city by contract and day labor; and thirteen thousand six hundred and twenty-eight (13,628) linear feet by private parties and released to the city.

#### ROXBURY.

If the scheme to fill in the South bay is carried out as contemplated, it will be necessary to extend the Dorchester-brook sewer. The route for the extension of this sewer is not as yet decided, as much depends upon when and how much of the bay is filled. If it is filled as far as Dover street, it would be better to run the sewer to Kemp street, South Boston, where it will join a proposed overflow sewer for that district, of almost equal size as itself, and from that point a sewer large enough to take the flow of both sewers will be carried to Dorchester bay. This route may be adopted even if the filling is only carried as far as the present Harbor Commissioners' line. The expense of this work, on account of its great size, makes it necessary to give this subject careful study, and it is also necessary to have a better understanding of what is to be done by the parties owning the territory before adopting a route for this sewer.

The district bounded by Swett street, Dorchester brook, Norfolk avenue and Gerard street, is one of the low districts in which (if the combined system of sewers is built) there is going to be the same old trouble about flooding. The few sewers that are now built, which have been started on the combined plan, can be converted into surface drains. Few houses are built and connected with the sewers, but as streets have recently been laid out and built through this territory, more houses will be built and more sewers called for. As the main interceptor runs through this district, it is easily reached with house sewers from all parts of the district. The sewer in Magazine street, which is situated in this district, is still

STONY BROOK CHANNELS, UNDER HUNTINGTON AVENUE, SHOWING METHOD OF STRENGTHENING.





discharging sewage on the flats at Massachusetts avenue. This state of things must continue until a sewer is built to the Dorchester-brook sewer. If the above suggestion for the district is to be carried out, a pipe connection could be made with the interceptor at Massachusetts avenue, and an overflow sewer built in Massachusetts avenue to the Dorchester-brook sewer, connecting below the tide gates. This will be the surface drain when the system is completed.

This is comparatively a new district. After the experience this division has had it seems unwise to keep on building a system of sewers (because the first cost is cheaper) that is almost sure to cause trouble in storms, to say nothing of forever pumping the surface water.

The sewers in Yeoman, Chadwick, Hampden and Albany streets are in the same condition as mentioned in former reports. These sewers are on the combined system, in a district the topography of which makes the small size of the sewers in the low land more evident. The sewers in the high land, on account of their steep grades, rapidly discharge the rain water into the sewers of the low land. If the tide is up during a severe rain, the sewers in the low land are immediately filled, and on account of the great amount of water from the high lands, are often filled above the level of the tide before it can escape.

One remedy for the trouble is to rebuild the old sewers to a larger size, or to build new sewers along the side of the present sewers, old and new sewers combined to have the desired capacity.

The other remedy is to run a pipe sewer from the interceptor in Massachusetts avenue to drain the cellars in the low district, the present sewers to carry the storm water of the low land, and both storm water and sewage of the high land. This would be an ideal system for the district, one from which absolute freedom from flooding would be insured, but, on account of the great expense, may not be adopted.

The sewers in Parker street, between Westland avenue and Boylston street, in Haviland street, and in passageway north of Haviland street, between Parker street and Massachusetts avenue, should be rebuilt.

The sewer in Boylston street, between the Parkway and Parker street, is badly settled, and should be rebuilt.

Sewers are needed on the sides of Stony brook to take sewage out of the brook between Huntington avenue and Elmwood street, as mentioned in former reports.

The ownership of the Muddy-river conduit was transferred from the Park Department to this division in 1895. This is a wood and concrete affair, 9 feet  $\times$  11 feet, in a dilapidated condition, and if not rebuilt will be in danger of collapsing. As this structure is about 1,600 feet long, and at a grade of one foot below city base, the expense of rebuilding will be large.

An overflow sewer to connect with the Muddy-river conduit is an essential part of the system of sewers, of which the sewer in Vila street is the main. This is not yet built, but will have to be before many sewers receiving surface water can be added to the system.

The sewer in private street, north of Dale street, between Wakul-lah street and Rockland street, and in Hewes street, has caused a great deal of trouble. This is an ancient structure with plank bottom, stone sides, and brick arch. It is too small for the amount it

has to carry; therefore, at times, running under a head which forces the water out through the sides into the neighboring cellars. To remedy this, it will be necessary to start about 1,100 feet down stream, and rebuild with a larger size and flatter grade as far as Walnut avenue.

About 2,200 feet further up stream is the Sherman-street district, which has been troubled a great deal by the small size of the sewers between Sherman street and Walnut avenue. To relieve this district it will be necessary to continue the proposed new sewer, mentioned above, as far as Warren street. This subject was discussed in the annual report for 1892.

The sewer in Columbus avenue, between Stony brook and the new Dimock street, being about completed, the proposed sewer in Dimock street, Notre Dame street and passageway to Washington street, should be built. The people in this district have been patiently waiting for a long time, and now that means of relief are about to be provided, it should be pushed ahead as rapidly as possible.

The surface drain built in 1895, in Huntington avenue, from Muddy river to Heath street, should be extended up Heath street as far as South Huntington avenue. Parties owning property in that neighborhood are about to build streets and sewers. The city will require sewers on the separate system, and unless the surface drain is carried up Heath street, there will be no outlet available for their surface drains.

The sewers in the Hammond-street district, the condition of which has been noted in former reports, have not yet been rebuilt.

The Harrison-avenue sewer, from Northampton street to Eustis street, which is in a deplorable condition, has been neglected year after year. It is now to be rebuilt, and work will commence at once.

The following is a list of defective sewers requiring rebuilding :

- Davenport street, Columbus avenue to Tremont street.
- Walpole street, Columbus avenue to Tremont street.
- George street, Clarence street to Dorchester brook.
- George street, Gerard to Magazine street.
- Haskins street, Vernon to Ruggles street.
- Orchard street, off Yeoman street.
- Winslow street, Palmer to Eustis street.
- Marshfield street, Batchelder street to Norfolk avenue.
- Hunneman street, Brown street to Harrison avenue.
- Newcomb street, Reed street to Harrison avenue.
- Lenox street, Sanford place to Harrison avenue.
- Halleck street, Ruggles to Ward street.

The district bounded by Centre street, Day street, Parker Hill and Columbus avenue, is made up of a somewhat level country on the south, and the south side of Parker Hill on the north. The trunk sewer for this district is the Old Heath and Minden-street sewer. This sewer is large enough to take care of the level section; but as there are no sewers and catch-basins on the south side of Parker Hill the rain-water rushes down the side of the hill to the sewers in the low land, causing a great deal of flooding. The first step was to put in a relief sewer through Old Heath street. This has been built this year; but the full benefit will not be felt until sewers and basins on the south side of Parker Hill are built.

As the owners have begun to develop the land this year, one new street having been built and a sewer laid there, there is a good prospect for a demand for sewers, which, when built, will end the troubles that have so long existed.

One short piece of sewer should be built immediately between the manhole on Heath street, at Wensley street, and the manhole on new relief sewer at Parker street and Heath street.

The sewers in Shawmut avenue, Roxbury street and Guild row, Burke street, Dorchester brook, Clapp to George street, are under construction by day labor; and the sewers in Ruggles street, Parker street to Back Bay Fens, Vancouver street, Ruggles street to Huntington avenue, Fullerton street, Columbus avenue, Ritchie to Dimock street are under construction by contract.

#### *Work done in 1896.*

Twenty-one thousand and eighty-three (21,083) linear feet of sewers and surface drains were built by the city by contract and day labor, and five thousand seven hundred and eighty-eight (5,788) linear feet by private parties and released to the city.

#### CITY PROPER.

The sewers in the South Cove district are now in a fair way of general overhauling. The final decision of the Boston Terminal Company to build the new Union Station with its tracks over many of the sewers of the district, makes it necessary to commence this work at once. The principal sewers within their taking are the east side interceptor and common sewer in Federal street, and the Mt. Washington avenue and Harvard-street sewers. The two latter, with the Federal-street sewer, below Kneeland street, are the overflow sewers for the storm water of the district. The proposed depressed tracks for suburban traffic are designed at a grade which will cut off these sewers, making it necessary to lower all three sewers from the depressed tracks to their ends at the channel. As this would bring the sewer below low tide, the expense of this work would be very large. Another serious consideration is that the Federal-street sewer, northerly from the depressed tracks, is built of wood, and eventually, though perhaps not for many years, will have to be rebuilt. As this sewer will then lie under many of the tracks, crossing at an acute angle, the work of rebuilding will be an inconvenience to the railroad and an expense to the city well nigh incalculable. It was, no doubt, these considerations that led the Terminal Company to suggest that the intercepting sewer be rebuilt around their station between East and Beach streets; and that the Harvard street, Federal street, and Mt. Washington-avenue overflow sewers be combined in one large sewer to be built in Mt. Washington avenue. All other sewers, regulators, tide-gates, etc., (with the exception of the main interceptor south of Beach street, which they propose to leave intact) lying within their taking, are to be abandoned by the city. The sewer in Federal street, between Kneeland street and Essex street, is to be replaced by a new sewer in the new Cove street, between the same limits.

The changes in the sewer system required by the Terminal Company now offer the opportunity so long delayed, but so much needed,

of completing the design of 1888-89; that is, to give the Beach-street sewer direct or open connection with the interceptor, first shifting the district regulator at Dover street to a point on the interceptor in new Cove street, near Essex street, and building the necessary regulators at Oswego and Kneeland streets. The regulator at Harvard street will not then be needed; that sewer being abandoned south of Harvard street and connected with the Kneeland-street sewer by a sewer through South street.

Measurements taken during the heavy rains of January 21, on the interceptor at Beach street, showed a difference of six feet in the level of the water at this point and the water in the interceptor on Massachusetts avenue and Albany street; when the district regulator is shifted the water in the interceptor at Beach street will be lowered several feet during a storm of the severity of that of January 21.

It will be seen at once what an advantage this will be to the Beach-street district, as in all heavy rains the interceptor, being cut off at Dover street, is immediately filled up, and the Beach-street sewer is obliged to discharge against the tide. Moving the regulators from within the taking of the Terminal Company will require the extension of branches from the interceptor to Cove street, at Kneeland street and Beach street. This will be the commencement of what is the only practical solution of the sewerage question for districts situated as this is. The main sewers are chiefly wooden boxes, cut off from the interceptor in heavy rains, therefore filling up to the level of the tide, which has many times risen to grades 13 and 14, while cellars connected with the sewers are legally allowed to be built at grade 12. The result is evident, unless every drain is provided with a back-water trap, and that must not fail to work.

The branches of the interceptor mentioned above should be built at such a grade that they can be extended all over the district and converted into house sewers, discharging directly into the interceptor. The old sewers can then be disconnected from the interceptor, and used as surface drains only. This, though the most expensive scheme on the start (it requiring another sewer or, perhaps, surface drain in streets where there are now good sewers on the combined system) will in the end be the cheapest, not only on account of the freedom from danger of flooding and making low land more desirable for business purposes, but also by taking from the pumps, that are now overburdened, all surface water and leakage, discharging it directly into the sea.

Work was started on the rebuilding of the sewers in Tyler street, between Beach and Curve streets, and was completed between Kneeland and Curve streets; the balance between Beach and Kneeland streets has not been rebuilt. Instead of completing this work as designed, on the combined system, the low-level house sewer proposed in Kneeland street at new Union Station, should be continued up Kneeland street, and a branch built up Tyler street, the old sewer then converted into a storm sewer; this to be one of the first steps towards carrying out the system proposed for this district, and could be carried into the Church-street district, giving the relief so much needed in that district.

Work has been started on the Canal-street relief sewer. This is perhaps the most important of the many heirlooms that have been handed down from year to year. The original line for the upper



**NEW SEWER IN CENTRAL STREET, CANAL-STREET RELIEF SEWER.**



part of this sewer was from Blackstone street, across Haymarket square to Canal street, and through that street to Causeway street. For this work a loan of \$100,000 was asked.

The proposed route of the subway cut through this line at Haymarket square, and the line was shifted to Haverhill and Causeway streets to Canal street. Later when the subway plans were developed, it was found that the structure would occupy so much of Haverhill street that there would be no room for a sewer of the size required, and the lines were again shifted to Charlestown, Beverly and Causeway streets to Canal street; this change will necessarily increase the expense of the work over the cost of the line as originally proposed. To commence this work a loan of \$25,000 has been made, which will build up the sewer to about State street. This work should not stop at this point; every effort should be made to push it along to its completion.

The excavation for the subway has already cut off the sewer in Haymarket square, and a temporary siphon has been built. The building of the subway has caused the destruction of many of the sewers along its route. In all cases they have been replaced on the sides of the streets in a manner satisfactory to this division, the work being inspected by one of the inspectors of this division.

Large buildings with deep cellars are growing up near the stations of the subway, and wherever practicable the grade of the sewers which the Transit Commission is building, to take the place of the old sewers, destroyed by the building of the subway, has been lowered to give the best drainage possible to these deep cellars. The proposed sewer on the north side of Hanover street, between Portland and Sudbury streets, and the proposed sewer on Tremont row, will be built at grades considerably lower than those proposed by the Transit Commission, which were substantially the same as the grades of the old sewers, but in these cases the Transit Commission has taken the ground that they have no right to build a sewer any better than the old one which it is designed to replace, and, if any additional expense is to be incurred to obtain better drainage, that the Street Department must pay the difference in cost. Although this division does not concur in their view, it has nevertheless agreed to bear the additional expense in the case of the sewers above mentioned.

It was foreseen, previous to the building of the subway on Tremont street, between Pemberton square and Beacon street, that a deep sewer should be built in connection with the work of the subway, on account of the extreme difficulty of ever building it after the subway was completed; and this division used its utmost efforts to induce the Transit Commission to build this sewer at a grade low enough to drain out the deep cellars in this locality by gravity. The Transit Commissioners refused to accede to the request of this division, and the discussion was prolonged to such an extent that the subway was practically completed without the low-grade sewer having been built. This is particularly unfortunate from the fact that there is no other way of approaching those buildings with a low sewer except through Tremont street, on account of the high grade of the land in the rear of these blocks. If a low-grade sewer is ever built in this locality it would be an exceedingly interesting and expensive undertaking. Until such a sewer is built the owners of

these expensive buildings will be compelled to maintain some form of pumping-plant to raise their sewage into the existing sewer, which is quite shallow.

The connections with the interceptor for the Church-street, Dover-street and Dedham-street districts are direct or open connections, the flow of rain water being taken in without regulators. On account of the many floodings in this district this was deemed advisable; but the amount of rain-water to be pumped depends only upon the amount that falls and the height of the tide, and must go on forever under the present system. The present sewers in these districts should be cut off from the interceptor, and converted into storm sewers and small tight house-sewers at a good depth should be connected with the interceptor. This would be a serious undertaking, on account of the amount of money required and the engineering difficulties to be encountered; but when completed, not only would these districts feel the benefit, but other districts situated above the district regulator would also feel the benefit, as from the decrease in the amount of water poured into the east side interceptor, the sewage would not rise to the cut-off line of the regulator nearly so quickly; thus the sewer situated above the district regulator would be helped out. They are now cut off during every hard rain, and fill up to the height of the tide, flooding out cellars.

The surface drainage of the Back Bay should be attended to. The sewers of the Back Bay districts are on the combined system. The trunk sewers, which run in a northerly direction, lie in Berkeley, Dartmouth, Fairfield and Hereford streets. The lateral sewers, running east and west, are in the passageways, thereby making it necessary to have only surface drains in the streets running east and west, and in Arlington, Clarendon, Exeter and Gloucester streets, running north and south. It was stated last year that to complete the surface drainage of the Back Bay would require 133 catch-basins and about 7,000 linear feet pipe surface drains or sewers.

The result will be a very complete surface system; but in all cases the storm water would still be drained into a combined system of sewers. The combined system is the cheapest of all sewer systems to construct, and for a district in which the cellars are at or above grade 15 is a very good system, as far as the danger of flooding cellars is concerned; but for this, in which the cellars are about grade 12, it seems to be only a matter of favorable circumstances when every cellar may be flooded, for when the storm water has raised the level of the water in the interceptor to a certain height, the regulators on the above-mentioned four trunk sewers, close the connections with the interceptor, and the storm water in the trunk and lateral sewers must rise to a height above the level of the tide before it can force open the tide gates and escape to the sea. The predicted tides for 1897 show, in a number of cases, that the tide will rise to grade 11.6. In a heavy easterly storm, the tide may be forced one foot or more higher. The combination of rain storm and high tide has happened, and floodings have occurred, as this division is well aware.

The only way to insure absolute safety for this district is to separate the storm water from the house sewage, and although this would be very expensive, when the value of property that may be destroyed in a flood is considered, it may be advisable to attempt it.

The present trunk sewers are large enough to carry the storm water. They could be converted into storm sewers. Pipe sewers could be built from the interceptor along the side of the present trunk sewers and connected with the present sewers in the passageways, which would then be house sewers. Shallow surface drains could be laid in the passageways, taking the flow from the catch-basins and discharging it into the existing trunk sewers. Similar surface drains could be carried where they do not already exist, up streets that are parallel with the passageways, reaching all parts of the district.

The regulators and connections between the interceptor and trunk sewers could then be removed, and a district regulator placed on the interceptor, just above Brimmer street.

On the water side of Beacon street one hundred and fifty-nine (159) houses and forty-five (45) stables discharge drainage into Charles river. In 1892 a sewer was designed to drain these houses, which was to be built in Back street. The outlet in Hereford street was to run into Beacon street, and, as about that time that part of Beacon street was to be asphalted, it was decided to build the outlet across Beacon street. The work was carried to this point and stopped, as at that time there was a proposition to build a boulevard one hundred (100) feet wide back of the houses. As it would be very much cheaper to build a sewer one hundred feet from the water than to build it against an old sea wall in ground made of clam shells and ashes, and in which tide water rises in many cases as high as the tide itself, it was decided to delay the construction of the sewer until something more definite was learned about the boulevard. As the building of the boulevard seems to be as far in the future as ever, and the houses still drain into the river, I would suggest that the construction of the sewer be no longer delayed.

The sewers in Prince street, between Salem street and Bennet avenue, and in the Eliot school-yard to Tileston street, and in Tileston street, between Salem and Hanover streets, should be rebuilt. This system of sewers is in poor condition, and when rebuilt their grade should be lowered, as the present system is too shallow.

The sewer in Hull street, an old wood, stone and brick affair, should be rebuilt. This sewer was in bad condition in 1892, but on account of the very steep slope on which it is built, and the exceedingly hard nature of the ground in which it is built, it has managed to continue to flow. This sewer is likely to be choked up at any time.

A very large number of sewers in the city proper, especially in the South Cove district, have settled, and are defective. The following list will give an idea of the extent to which the city will be called upon to rebuild sewers in the near future; the rebuilding of a large proportion of these cannot and should not be much longer postponed if the appropriation can possibly be secured, as the cleaning of them is a continual expense.

Brighton street, from Milton to Leverett street.

Wall street, from Minot to Causeway street.

Wiget street, from North Margin to Salem street.

Haverhill street, from Traverse to Causeway street.

Nashua street, from Minot to Causeway street.

India street, from Central street to India square.

Milton street, from Brighton to Spring street.  
Leverett street, from Causeway to Green street.  
Chatham street, from Commercial street to Merchants' row.  
Bread street, from India to Broad street.  
Stillman street, from Charlestown to Salem street.  
Way street, from Harrison avenue to Albany street.  
East street, from Cove to Lincoln street.  
Edinboro' street, from Essex to Beach street.  
South street, from Beach to Kneeland street.  
Winchester street, from Church street to Edgerly place.  
Appleton street, from Tremont to Berkeley street.  
Albany street, from Genesee to Troy street.  
Oak street, from Albany to Hudson street.  
Warren avenue, from Dartmouth to Clarendon street.  
Passageway between Concord street and Worcester square.

St. Charles, Guy, Piedmont, Ferdinand and Kirkland streets are badly settled, and need either partial or complete rebuilding.

#### *Work done during 1896.*

The filling in of the dock into which the Pearl-street district sewer overflowed made it necessary to remove the overflow sewer. A sewer was built in Atlantic avenue and Congress street, pitching toward Pearl street, where it is connected with the interceptor. At the outer or seaward end of the sewer, tide gates were built. This sewer does the work of two sewers, in dry weather carrying sewage to the interceptor, and in rain storms flowing up hill, forcing open the tide gates, and discharging storm water into the sea. This seems to be a very desirable design to adopt when the interceptor is situated back from the shore line.

The old leaky wooden sewers in Endicott street, between Causeway and Thacher streets, between Endicott and North Margin streets, have been replaced with tight brick sewers.

The sewerage system for the markets, that has been so long in a most deplorable condition, has been rebuilt, and is now in satisfactory working order.

The Falmouth and Norway-street sewers that have been in so much danger of collapsing for a number of years have been rebuilt.

Sewers in Webster avenue and Unity street, and Beacon street, west of Charlesgate West, are under construction by day labor.

Six thousand one hundred and forty-five (6,145) linear feet of sewers and surface drains were built by the city by contract and day labor, and five thousand five hundred and thirty-seven (5,537) linear feet by private parties and released to the city.

#### SURFACE DRAINAGE.

The problem of surface drainage for the city of Boston has been exhaustively discussed in the annual reports for a number of years, but yet a few words more upon the subject, together with some statements of the amount of work it will be necessary to do, may not be amiss.

There are two different aspects in which the problem of surface drainage presents itself; the first is that of providing outlets for new catch-basins other than the old existing house sewers. Surface

drains for this purpose might often be of no very great length, say 300 to 600 feet, and twelve, fifteen, and eighteen-inch pipe. But in that case they would have to empty into the existing water-courses where those cross the streets through culverts.

The second aspect of surface drainage is that concerned with the keeping open and preservation of these same water-courses; or of substituting for them, when more convenient, large drains in the neighboring streets. It may often be a question whether it will be cheaper, wiser and better every way, to preserve the old brook channel, or to make one in a parallel street. Each case must be decided on its own merits. But as the old stream always runs in the lowest ground, it is better to preserve the old channel, unless it has been so far obliterated as to render it impracticable.

The history of the water-courses in the suburbs of Boston, that is, in Dorchester, West Roxbury and Brighton, would be a curious one. In many cases it seems as if the residents had regarded them as nuisances which could be removed by simply filling them up; forgetting that the same amount of rain must fall on any territory, no matter how highly improved, as has always fallen from the creation of this continent. This rain, of course, must be disposed of by artificial means if the natural means have been destroyed.

The course, therefore, that seems best for the city of Boston to pursue about surface drainage would be two-fold.

1. The city should, in the majority of cases where new catch basins are built, empty them into short surface drains leading to the nearest culvert or brook channel.

2. The city should take charge of straightening and deepening the channels of the brooks between the streets. In a great many cases this can be done by means of open channels; brick, stone, or concrete culverts being built of the proper size and at the proper depth, where the brooks cross the streets. In this way the "*régimé*" of the stream will be fixed beyond the possibility of unauthorized change, while the expense of covered channels for the whole length of the brooks will be postponed for many years, until it is forced by dense settlement.

The following tables, hastily prepared, give an approximate bird's-eye view of the surface drains which would be required in the principal valleys of Dorchester, West Roxbury, and Brighton during the next ten years. This is meant only as an *illustration* of the size and importance of the subject. It is impossible to predict in advance just which or how many of these surface drains will be required first; this would depend on a number of uncertain circumstances, the priority of settlement, the number of inhabitants, and many other circumstances, only known as they appear from time to time.

**General Scheme for Surface Drains in Dorchester District.**  
**[Approximate.]**

DISTRICT.	Length of Surface Drain needed in next ten years. Linear Feet.	Approximate Cost.
Dorchester brook.....	9,000	\$20,000 00
Crescent-avenue brook.....	1,000	2,500 00
Sidney and Soudan-streets brook.....	650	1,450 00
Wesley-avenue and Sidney-street brook...	1,600	4,000 00
Midland-street brook.....	700	1,000 00
Dorchester avenue, between Savin-Hill and Roach-street brook.....	3,000	6,000 00
Glover's-corner brook.....	1,500	4,000 00
Clayton and Greenwich-streets brook....	3,000	6,000 00
Ashland and Capen-streets brook.....	400	600 00
Preston and Mills-streets brook.....	1,000	2,000 00
Elm-street brook.....	1,000	2,000 00
Park street at Harrison-square brook....	400	600 00
Park, Dickens and Adams-streets brook..	1,000	2,000 00
Tenean brook or Smelt brook.....	30,000	72,000 00
Tenean street, near Freeport-street brook..	1,500	2,500 00
Neponset brook.....	4,000	6,000 00
Taylor-street brook.....	500	1,000 00
Davenport brook.....	6,000	9,000 00
Richmond and Adams-streets brook.....	3,000	800 00
Central-avenue brook.....	800	1,200 00
Idaho-street brook.....	1,500	3,000 00
Brook, 750 feet west of last above.....	3,000	6,000 00
Brook, 2,250 feet west of last above.....	500	1,000 00
Brook, 300 feet west of last above.....	500	1,000 00
Mattapan brook.....	13,000	27,000 00
Oakland-street brook.....	2,500	5,000 00
Stony brook.....	7,500	22,000 00
Grand total.....		\$209,650 00

**General Scheme for Surface Drains in West Roxbury.**  
 [Approximate.]

DISTRICT.	Length of Surface Drain needed in next ten years, Linear Feet.	Approximate Cost.
Goldsmith brook .....	2,155	\$21,095 00
Arundel street branch of Roslindale branch of Stony brook.....	3,990	24,925 00
Hewlitt and Farquhar streets branch of Stony brook .....	2,010	12,940 00
Spring-street brook .....	7,060	28,207 00
Roslindale branch of Stony brook.....	3,500	35,920 00
Montview and Kirk-streets brook .....	1,200	4,200 00
Grand total .....	.....	\$127,287 00

**General Scheme for Surface Drains in Brighton.**  
 [Approximate.]

DISTRICT.	Length of Surface Drain needed in next ten years, Linear Feet.	Approximate Cost.
Faneuil-valley brook .....	6,525	\$53,768 75
Oak-square branch of Faneuil-valley brook.	1,480	10,712 50
Market-street branch of Faneuil-valley brook.....	1,800	12,600 00
Holmes-avenue brook.....	2,400	21,500 00
Salt-creek brook.....	1,700	24,400 00
Brook across Commonwealth avenue, between Kinross and Sutherland roads ....	800	5,800 00
Brook, from Chiswick road to Commonwealth avenue, and down Strathmore road.....	2,150	17,225 00
Brook, from Shepard street to Western avenue.....	10,525	152,956 25
Grand total .....	.....	\$298,962 50

Taking up the various principal valleys in Dorchester, somewhat in their order, from north to south, and then from east to west, I will begin with the west branch of Dorchester brook.

This rises in Washington street near Grove Hall, and runs down just east of Blue Hill avenue, crossing Lawrence avenue and Quincy street, and running through the old William Gray estate, near Howard avenue, joining the easterly branch, near Durginville.

The city is now building a separate system of sewers in the territory between Geneva and Lawrence avenues; house-sewer, 12-inch pipe; surface drain, from 3 to  $4\frac{1}{2}$  feet diameter. Below Lawrence avenue there is only a combined system, sewer and brook being in one channel, a good deal of which is of a capacity of about 50 to 70 cubic feet per second. The area above Lawrence avenue is about 180 acres. The area of the whole brook is about 430 acres. It is evident that if storm water is to be admitted more freely at the upper end (which must happen as the settlement increases) some new outlet must be found for the storm water below, or flooding of low cellars will result.

The largest size of the existing old combined sewer is 4 feet  $\times$  4 feet 6 inches, cross sectional area, 15 square feet; the largest size of the surface drain needed for this valley would probably be about 11 feet; cross sectional area 95 square feet.

The easterly branch of Dorchester brook rises on Mount Bowdoin, near the New England Railroad, and follows the general route of that railroad to Dudley street, and then through Humphreys street to the other branch at Durginville.

This valley, like the preceding, is supplied by combined systems; that is, the brook and sewer are all one. The size of the sewer at Columbia-street crossing is about 42 inches  $\times$  36 inches; area above this point 70 acres. Total area of the brook, 225 acres; largest size of existing sewer, 5 feet, with cross sectional area of 20 square feet. Probable largest size of surface drain required, 6 feet 3 inches, with cross sectional area of 30 square feet.

The inadequacy of the existing sewer for the storm water is already shown at the Quincy-street crossing under the bridge, where it is reported that the street has had two feet of water in it during storms.

The next valley of interest is at Crescent avenue. Area of valley above Dorchester avenue, 40 acres; size of combined sewer below Dorchester avenue, 3 feet; capacity, 30 cubic feet per second and less.

This is a place where the culvert under Dorchester avenue has been obstructed, and much complaint has been made from the flowage in the neighborhood of Pond and East Cottage streets. Probably the only substantial relief for this district will be had in the building of additional surface drains, to supplement the existing combined sewer.

We now come to the valley of Hancock and Freeport streets, emptying at Glover's corner. There has been more or less complaint of flooded cellars and surface water, particularly from the neighborhood of Trull street, and also of Draper's court. No permanent relief or improvement can be obtained here without a system of surface drains.

We now come to the valley of what is called at its lower end, where tide flows, "Teneau creek," and in its upper part, "Smelt brook."

This brook is divided into two sections. The northern part rises at Washington street, near Olney, and flows down by Geneva avenue to the "clay pits," so called, and from there through the sewer yard to Park and Mill streets. The south branch rises on Washington street above Carlisle street, and flows down across Melbourne street and Dorchester avenue, by the way of Lonsdale and Edwin streets, crossing King, Centre, Dix, Parkman, and Gibson streets, to the sewer yard, where it joins the other branch.

With regard to the first named or north branch, the city has already built a liberal surface drain in Geneva avenue and Westville street, as well as culverts under Josephine and Charles streets, also a wooden channel, 6 × 6, in what is called the "old garbage yard." It would be well to complete this work as soon as practicable, at least to the extent of building culverts under the remaining streets, and deepening and straightening the channels between culverts.

On the south branch of this brook there is much swampy territory, and there are many new streets laid out and built upon in the square formed by Dorchester avenue, King, Adams, and Ashmont streets. On one of these new streets, Lonsdale street, also across Dorchester avenue, new culverts have been built of the proper size. No other scientific improvement of the channel has been made, but on the contrary it has been diverted through small pipes to suit the convenience of land owners. Some petitions have been sent in, asking the city to build a system of drainage for this whole territory. The least to be done is to straighten the line between existing culverts. Below this square, culverts have been built across King, Centre, Dix, Parkman, and Gibson streets.

Between the outlet of the last named at Commercial point and Neponset there are some small outlets, mostly tidal and draining, but little area. The only one needing mention here is one crossing Tenean street, 300 feet north of Fulton street, where the old wooden culvert has broken in, and should be rebuilt, either in wood or in better material.

We now come to a somewhat extensive stream called Davenport brook, which rises on Codman hill, also on the edge of Lower Mills Village, and also near Armandine street, and flows down, one branch through the Churchill meadow and Codman street, the other branch from Armandine, through Bailey and Van Winkle streets, to join the other, near the corner of Adams and Minot streets, from which point they flow by Marsh street to the Neponset river.

On the north branch of this brook, in Armandine, Ashmont, Bailey and Fuller streets, the condition of things is bad. Private parties have apparently fought the brook as if it were an enemy, and have so abused it as to put it clean out of sight; except in times of freshet, when it asserts itself by filling cellars, spreading over low lands, and sending the neighboring citizens into this division to ask for protection against malaria and diphtheria. (There doubtless being on this brook, as on most others, sink drains and water-closets emptying into the stream.)

On the south branch of this brook, leading from the rear part of Lower Mills Village, there is not so much complaint, as the locality is not so much settled. There is, however, some zymotic disease, calling for sewerage facilities; and there is an excellent chance to improve the sluggish, swampy brook channel now, while the territory is still unsettled.

The next brook along the Neponset river is the Mattapan brook, which rises at Capen and Selden streets, and flows along by the Forest-avenue station and the New England Railroad to Mattapan station on that railroad, whence it follows nearly the line of Blue Hill avenue, crossing it very obliquely to the Neponset river at Mattapan square.

Between the New England railroad and the Neponset river, this brook would so much affect the proposed widening of Blue Hill avenue (running in it a good deal of the way) that some scheme for its improvement in that part would have to be incorporated into the widening. The upper part of the brook is so extremely flat and swampy that it would very soon be a menace to the health of that rapidly-growing neighborhood, and ought to be straightened and deepened as a measure of sanitary precaution. There are on this brook probably 150 acres of swampy land, flowed every winter and spring, out of a total of 300 acres.

The last brook on the Neponset river is the Oakland brook, which rises on Oakland street, near Calvary Cemetery, flows northward in front of Mount Hope Cemetery, turns and runs eastward, then south-eastward, parallel with Walk Hill street; thence southerly, crossing Oakland street, and crossing the New England Railroad, near Rugby station, where it receives a large branch from the town of Hyde Park, and crossing River street makes its way into the Neponset river.

This brook has recently been studied by this division, in connection with the "Board of Survey" squares, being prepared for filing by the surveyors of the Street Commissioners' Department. Almost the whole valley of this brook is in a dense forest; but evidently the time when it will come into market in competition with its immediate neighbors is not far off, and it would be a great blessing to its future inhabitants if a scheme for improving the channel of the brook could be carried out in advance of the building of streets and houses.

We now come to the westerly quarter of Dorchester, which lies in the valley of Stony brook. This territory in its northerly part is high and rolling, sloping gently from Mount Bowdoin and Grove Hall to Talbot avenue. This portion of it needs very soon a good many lengths of surface drain, but no very extensive system at present, until the brooks are improved lower down. But south of Talbot avenue the condition of things is very different. There is a territory centring at Lauriat avenue and Dorchester station on the New England Railroad, which is naturally very swampy, and which has been settled up in advance of any system of drainage. The wants of the inhabitants here for house sewerage will soon be met by the completion of the new pumping station, by which their house sewage will be pumped over through Talbot avenue and the Centre-street tunnel to Dorchester bay. But this can evidently do absolutely nothing towards the surface drainage of the land; that is, towards relieving it from the rain water of 800 acres, brought down from Mount Bowdoin and Franklin Park, and diffusing itself over acres of swampy land. The natural course of the water from this territory is by the "Canterbury branch" of Stony brook, which crosses Blue Hill avenue, near Chapman avenue; thence crossing Harvard, Morton, and Walk Hill streets, passes just eastward of Canterbury street, to join the main stream of Stony brook, which flows from there by Forest Hills and Roxbury stations to the Back

Bay. But this course from Dorchester to the Back Bay is very long and flat. From the new pump house, near Dorchester station, by the route of the most convenient streets to Dorchester bay, near Harrison square, is about  $2\frac{1}{4}$  miles. From the same pump house by the valley of Stony brook to its outlet at Beacon street, near Charles street, is about  $5\frac{1}{2}$  miles. There is practically the same fall of 50 feet to high tide in either direction. This implies an average slope of about 9 feet to the mile towards the Back Bay, and an average slope of about 22 feet to the mile to Dorchester bay. But in the latter case, inasmuch as the intervening ridge is about 40 feet above the point of starting, the utilization of this route would probably be by a tunnel, passing at a flat grade 50 or 60 feet below the summit, and then by a channel having a quick descent to the waters of Dorchester bay.

No doubt the drainage of this section of Stony brook in Dorchester, as well as of quite a tract lying on the brook in West Roxbury, could be most speedily and effectually handled by means of such a tunnel, were it made large enough. The cost, however, would be considerable; it has been variously estimated at from \$250,000 to \$300,000 which has probably prevented it from being favorably considered up to the present time. There would be various advantages, however, connected with this tunnel, for the disposition of house sewage, which will be touched on later.

If it should prove that the time is not ripe for such a tunnel, a comparatively inexpensive relief for the surface drainage of the Lauriat-avenue and Chapman-avenue region can be obtained by deepening the open channel of the Canterbury branch of Stony brook down to the main brook, a distance of about 10,000 feet. (The main brook at this point was straightened and deepened to the established grade by the town of West Roxbury previous to annexation.) This is an improvement, by the way, which ought to be made at an early date for purposes of general sanitation and agricultural improvement.

Meanwhile, the existing state of things near Lauriat avenue is about as bad as anywhere in the city of Boston. This large brook, for the reception of which the city has built culverts across Lauriat avenue, 6 feet square, has been interrupted at many points by private streets with only 15 and 18-inch pipes provided for culverts.

#### WEST ROXBURY.

##### *Goldsmith's brook.*

The two branches of this brook rise near the line between West Roxbury and Brookline, and flowing down on opposite sides of Moss hill come together near Goldsmith street. From this point to Woodman street, a distance of about 400 feet, there is at present an open channel which needs widening and deepening. From Woodman street, across private land to Jamaica street, there is a culvert of about 15 square feet cross-sectional area, which should be increased to at least 30.

From Jamaica street to the easterly side of South street, a distance of about 600 feet, the present channel is large enough to satisfy the probable needs for the next ten years.

At South street the area naturally drained by the brook is about 550 acres, and the sewers at present built in this area receive more or less storm water which properly should be taken directly to the brook.

From South street to Call street, a distance of about 950 feet, the channel of the brook is, for the greater part of the distance, in a most deplorable condition. The yards and cellars are flooded during heavy storms and, except for a very small part of the way, no pretence is made of providing a sufficient channel, or of confining the brook within proper bounds.

Under Call street and the N. Y., N. H. & H. R.R., Providence Division, the channel is of sufficient size, but from the railroad to Washington street, a distance of about 450 feet, there is an open channel, of shallow depth, which seems to be a receptacle for all sorts of rubbish, and in warm weather is a menace to the health of the residents in this locality.

From Washington street to Stony brook is a large well-built culvert constructed by the city in 1895.

*Arundel-street branch of Roslindale branch of Stony brook.*

This brook drains a considerable area of swampy land bounded by Walter, Weld and Selwyn streets, containing about 40 acres. The main brook runs across Selwyn, Knoll, Arundel, Mozart, Hewlett, Farquhar and South streets, and the N. Y., N. H. & H. R.R., and Birch street, below which point it requires no attention at present.

At South and Hewlett streets are culverts of sufficient size. Under the other streets the culverts are much too small and should be rebuilt at a very early date.

The channel in other places, except where it crosses streets, requires deepening and widening.

*Hewlett and Farquhar-streets branch.*

This branch rises a little above Centre street, between Hewlett and Farquhar streets, and joins the Arundel-street branch about 250 feet from Walter street.

The culvert under Centre street is at present in a tumble-down condition, through which the water trickles without any pretence of free flow, and on the up-stream side stands in a large pool during wet weather.

Between Centre and Hewlett streets is, for part of the way, an open channel, and for the remainder of the distance a 6-inch pipe. The care of the water, after the culvert under Centre street is rebuilt, will require a 30-inch pipe. This will connect with the 30-inch pipe under Hewlett street, built in 1896.

From Hewlett street to Selwyn street there is an open channel which, for some three or four years to come, will probably require no attention. Within ten years, however, it will be necessary to make this into a walled channel.

At Selwyn street the brook was taken a few years ago by private parties into a 15-inch pipe, and carried up Selwyn street to Hewlett street, and thence down Hewlett street to the main branch, near Walter street. This 15-inch pipe has a capacity of about  $3\frac{1}{2}$  cubic feet per second, and will in a few years be called upon to carry some 40 cubic feet per second, thus necessitating the rebuilding of the channel between the limits given above.

The area drained by these two brooks contains at present over 100 houses. There is a sewer in Hewlett street, and sewers nearly completed in Mozart, Selwyn and Arundel streets; also a demand for sewers in other streets in this area.

There is every reason to suppose that the usual attempt will be made by the property owners to fill in the brooks where they cross their land, particularly as these brooks in the summer time carry very little water. As the sewers in this vicinity are all designed on the separate system, they are utterly inadequate to care for any surface water from the streets.

*Spring-street brook, between Charles river and head waters of the brook near Bellevue street.*

This brook at present receives the sewage from quite a number of houses lying in the area between Centre, Spring and Baker streets. The sewers to be built in this area in the near future will connect with the Metropolitan sewer, now in process of construction, and are designed to carry only house sewage. This brook, therefore, will be an outlet for surface drainage for quite a large territory, and it is, therefore, of great importance that the channel be preserved in good condition, and when improvement is necessary that the improvements be built of proper size.

From the river to Baker street, a distance of about 3,500 feet, it is proposed to have an open channel, part being with sloping earth sides, and part with walled sides.

From Baker street to Centre street will be required a brick channel, containing from  $12\frac{1}{2}$  to  $23\frac{1}{2}$  square feet cross-sectional area. The existing culverts vary from 1 to 6 square feet in cross-sectional area.

From Centre street up, an open channel will answer for some time to come.

*Roslindale branch of Stony brook, from Washington street to Central station.*

This brook has been abused much less than any of those above mentioned, probably owing to the fact that building operations have begun in this territory within only a few years. It will require a wider and deeper channel, with proper culverts under the various streets, as the area becomes settled.

*Brook from Montview street, near Kirk street, to Centre street, near Corey street.*

This case is the worst that has been brought to notice in West Roxbury. At Centre street the brook has been taken into the surface drain in that street, and from Montview street nearly, or quite to Centre street, the channel is practically obliterated. For some little distance down from Montview street, however, there is a blind drain which replaced the brook, and the location of which, I am informed, can be easily determined in wet weather.

This blind drain does not operate to any extent, and as the surface of the ground at the outlet to the culvert under Montview street has been filled in to a height somewhat above the water line of the culvert, the water instead of running off becomes stagnant.

A request was made by the West Roxbury Improvement Society that the culvert be abandoned, and the basins connected with it be connected with the sewer in the street.

The sewers in the neighborhood are on the separate system and should receive no storm water whatever.

The above request is a fair sample of what always comes to pass if owners of land are allowed to interfere with natural water courses.

## BRIGHTON.

*Faneuil Valley brook, from upper culvert at Lake street, to Wool pond, near North Beacon street.*

Culverts of size sufficient to answer for many years were built in 1891, under Lake street, at the two points where this brook crosses it. Between these points it is probable that no change will be made in the brook until the streets laid out by the Street Commission on the east side of Lake street are constructed, some of which cross this brook. Culverts under the streets will then be necessary, and the brook in the land between the streets will require walled sides. In this area the brook will receive all the surface water from the streets.

From the lower culvert, under Lake street, to Hobart street, the conditions are the same as above.

There are culverts under Washington, Fairbanks Oakland, and Faneuil streets built by the city, of proper size, but at Hobart street the culvert will require to be much larger than at present.

From Hobart street to Wool pond the brook is carried part of the way in an open-walled channel, and part of the way in a covered channel. Neither of these is of sufficient capacity to last for many years, except at Parsons street, where there is a culvert of proper size.

*Oak-square branch of Faneuil Valley brook, from Brooks pond to Oak square.*

Under Brackett street and at Faneuil and Brooks streets, at the junction of the two streets, culverts of about 25 square feet cross-sectional area are needed in place of the very small culverts at present in use.

In the private land between the streets the channel should be deepened and widened and the sides protected by stone walls.

At Oak square this brook receives all the surface water from Tremont and Nonantum streets, and a large part of Washington street, northwest of Oak square.

*Brook from Market street, near Faneuil street, to outlet near North Beacon street.*

The upper part of this brook, near Market street, has been filled in within two years. The lower part is in a covered channel of insufficient size. The middle part of the brook is open, and receives water from the hills in the vicinity.

There has been complaint by the owner of the land that in time of storm, or when the snow melted in the spring, that his land was flooded on account of the outlet being obstructed.

The upper and lower part of this brook should be taken into a 3-foot 6-inch circular brick conduit, and the middle part improved for the present by building an open channel, with walled sides.

*Holmes-avenue brook, from Harvard avenue to culvert, under Commonwealth avenue, near Griggs street.*

Culverts have been built in 1896 under Holmes avenue, at the two crossings of this brook. Owing to the proximity of Commonwealth avenue, and the fact that streets running perpendicular to

Holmes avenue have recently been completed in the town of Brookline, the line between which town and Boston is only about 250 feet from Holmes avenue, it seems probable that the land abutting on this street will soon be developed. On this account the proper thing to do is to take the brook into a brick conduit, which will vary from 16 to 24 square feet in cross-sectional area.

*Salt Creek brook, between Boston & Albany Railroad and Commonwealth avenue.*

This brook is the outlet for all the surface water falling on Commonwealth avenue, between Pleasant street and the summit southwest of Warren street, as well as for all the streets already built or to be built between the avenue and the southerly limits of the drainage area which lies in the town of Brookline. It is also the outlet for several branches lying wholly or in part in Brookline. This brook should be widened and deepened, with stone-wall sides, from the railroad up to the northerly line of Commonwealth avenue. From that point, for a distance of about 100 feet under the avenue, a new culvert was built in 1892, but in the southerly 60 feet of the avenue the old culvert of inadequate size and poor condition remains.

From the southerly side of the avenue a new culvert, following about the course of the brook, was built by private parties in 1893. It lies in private land, and is too small in size and of poor construction.

The last two mentioned should be rebuilt, thus affording an adequate outlet for the present concrete conduit in Commonwealth avenue.

*Brook across Commonwealth avenue, between Kinross and Sutherland roads.*

There is at present a culvert under the avenue and under Sutherland road which is not in very good condition, but will probably answer until the avenue is built to its full width. Below the avenue the brook should be taken into a brick conduit and carried down to connect with the brick drain built by private parties when the land along the lower part of the brook was developed.

The land in this vicinity is of considerable value, and as the sewers all drain into Brookline territory, and must be on the separate system, it is of importance that the brook be preserved to carry the surface water.

*Brook from Chiswick road through private land to Commonwealth avenue, thence across the avenue and down Strathmore road to connect with existing channel at Englewood avenue.*

This brook should be taken into a channel of proper size, as it will receive the surface water from streets covering considerable territory. The upper 650 feet of this brook lies in private land, and as it contains water only a few months in the year, and the land in this vicinity is being rapidly developed, means should at once be taken to preserve the channel. The remainder of the brook is carried in streets by small pipes and tumble-down stone drains to a brick conduit, built by private parties, and extending into the town of Brookline. It will require a channel containing about  $7\frac{1}{2}$  square feet cross-sectional area.

*Shepard-street brook, from Shannon street to Western avenue.*

The present condition of this water course is a source of annoyance to the property owners in various parts of this drainage area, and will become more so as the territory increases in population. The brook rises near Union and Shannon streets, and formerly flowed across Shannon, Shepard, Washington and other streets to Western avenue, and thence to the Charles river. The condition of the brook at this time is as follows:

It is carried across Shannon street in a 24-inch pipe, laid by the city, from a point near its source to about half-way between Shannon and Shepard streets, where it empties into the open channel. A short distance below it is taken into a 15-inch pipe, built by private parties several years ago, and carried to Shepard street, at which point it is taken into the Shepard-street sewer. As the sewer in Shepard street has a capacity of only 4 cubic feet per second, and the water delivered by the brook at this point may, in time of average storm, amount to 15 or 20 cubic feet per second, it is not at all remarkable that some of the cellars and yards in this vicinity are flooded during storms.

From Shepard street to the West End car-house, near Washington street, the channel of the brook is obliterated; but the channel under the car-house still remains. From that point to Sparhawk street, the old, covered stone channel is in existence. Its location is known approximately, but not its size or condition. The catch-basins at the junction of Cambridge and Washington streets, which formerly emptied into the brook at this point, are now running into the sewer in Washington street, and in time of storm assist in overcrowding this sewer and flooding the cellars in the vicinity. From Sparhawk street to Murdock street the brook is entirely wiped out.

From Murdock street to North Beacon street, the channel remains; but at North Beacon street the brook was several years ago taken into the sewer at the earnest solicitation of one of the large property owners of Brighton. As the sewer was never designed to carry any such quantity of water as is brought to it by the brook, and is entirely inadequate for such purposes, the natural result has been that the sewer, in time of storm, is greatly overtaxed, and cellars along the valley of the brook are often flooded. It is perhaps a case of poetic justice that the man who was chiefly instrumental in having the brook taken into the sewer in order that it might be removed from his land farther down, has been one of the greatest sufferers from the overcrowding of the sewer. To restore the brook to this point will require a conduit, varying from 24 inches to 5 feet 6 inches in diameter.

From North Beacon street, nearly to Everett street, the channel is entirely obliterated; and, although there is a short length of open channel near Everett street, it has no outlet. From North Beacon street to Everett street would require a conduit of about 40 square feet cross-sectional area.

From the easterly side of Everett street to North Harvard street, the brook is carried in a covered channel, laid by private parties, consisting of wooden culverts and earthenware pipes, which vary in capacity from 3 to 8 cubic feet per second. If we consider only the area between Everett and Franklin streets, the quantity that will be brought to these pipes when the land is a little more developed will be at least 40 cubic feet per second. If we

consider the entire drainage area of the brook down to this point it will ultimately amount to 250 cubic feet per second. As the territory between Lincoln street and North Harvard street is sewered on the separate system, the necessity of providing an adequate outlet for surface water can readily be seen.

From a little beyond North Harvard street to Western avenue, and thence to the Charles river, there is an open channel which would only require deepening and widening, with perhaps walled sides.

It will be seen by the above report on surface drains that this division has made a very careful study of this, both on an engineering and scientific basis. This is a subject that has caused a great deal of trouble to the division, but the trouble in the past is nothing to what the trouble will be in the future, unless some remedy is given. The city has reported a bill to the Legislature for the relief of surface drainage.

## MAIN DRAINAGE.

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In the early history of Boston, when any citizen, or number of citizens, deemed it necessary to have a sewer to drain their cellars or lands, they proceeded without reference to the town government to construct and control a sewer to discharge by gravity on the most direct route to the tide water, of such size and materials as they saw fit.

With the increased importance of the town government, no drain was allowed to be laid or repaired without permission of the selectmen; but even then drains of all sorts, sizes and shapes were laid, sometimes more than one in a street, side by side, or one above the other, with no plans to show their location or the position of those previously laid.

Until it became a city, in 1823, and took control of all the sewers, new and old, the greater part of Boston was sewer'd in this way. Fourteen years later a "Superintendent of Sewers" was appointed to have entire charge of the sewers.

While Boston was a small city, situated on hilly land, with good slopes on all sides toward the water, allowing the sewers a grade that prevented any accumulation of deposits, the amount of sewage, insignificant when compared with the immense volume of sea water, caused little annoyance by the method of sewage disposal in use.

The increasing population and growth of the city, the territorial enlargement being for the most part by reclaiming the tidal marshes and flats, requiring the extension of sewers on slight, and, in some cases, level grades to the tide water, brought the evils of the sewerage system, or lack of system, into public notice.

The flood tide in closing the tide gates at the sewer outlets prevented the escape of the sewage, and forced the sewers to act for the greater part of twelve hours as stagnant, elongated cesspools, whose efficiency was being lessened daily by amassing deposits too solid to be removed by the feeble current produced by the ebbing of the tide. During high tide a heavy rain would surcharge the sewers, flood the cellars, and force the sewage itself into the houses.

Such an unbearable stench arose from the deposits putrifying in the sewers and in the catch-basins, constructed on the sewer lines, that all ventilating openings were sealed. In event of the wind blowing into the sewer, or the rising sewage, dammed by the flood tide, compressing the air, the foul sewer gas was forced up the badly constructed drains into the houses.

The sewage discharged from the seventy independent outlets during the latter part of the ebb, returning on the flood, was deposited, not only on the flats about the sewer outlets, but also far inland, there to decompose and fill the atmosphere with vile, penetrating odors that hung over the city from end to end.

The air was so polluted, especially in the neighborhood of the marsh lands, that houses were closed, and their occupants left the city; business was blocked, and laborers were obliged to quit work;

public attention was aroused, and complaints were received daily. To quote from a report of the city Board of Health: "Large territories have been at once and frequently enveloped in an atmosphere of stench so strong as to arouse the sleeping, terrify the weak, and nauseate and exasperate everybody."

The nuisance became so intolerable that an Act, to provide for a commission to be paid by the city of Boston, on the subject of drainage and water supply for the city of Boston and vicinity, was passed in a special session of the State Legislature (chap. 360, Acts of 1872). On the ground that the expense should be shared by the other cities and towns interested, Boston refused to comply with the terms of the Act.

Time passed, and although the complaints of the citizens became louder, the adjacent towns manifested no desire to co-operate with Boston in constructing a comprehensive Metropolitan sewerage system. The city, however, deciding to proceed alone, began by passing the following order in the City Council:

"Ordered: That the Committee on Sewers be requested to examine into the present system of sewerage in this city, and report to the City Council whether any improvement of the present sewerage facilities is necessary for the protection of the public health."

The Committee on Sewers reported that the sewerage system was very satisfactory, and that no improvements were needed.

In spite of the favorable report of the Committee on Sewers the question of improving the sanitary condition was again and again brought before public attention by the City Board of Health and by progressive citizens, with the result that early in 1875 His Honor, Mayor Samuel C. Cobb, appointed E. S. Chesborough, City Engineer of Chicago, Moses Lane, City Engineer of Milwaukee, and Charles F. Folsom, M.D., Secretary of the Massachusetts State Board of Health, as a commission to thoroughly investigate the sewerage of Boston, and the best method and scheme of sewage disposal for the future.

The carefully prepared, far-seeing report of this commission justified the anticipation of their ability to cope with the great question involved. In brief, they advised the construction of two trunk intercepting sewers, one designed to include the part of Boston and the adjoining territory lying to the north of the Charles river, to discharge at Point Shirley; the other, designed to drain, until the population was greatly increased, all the territory lying between the Charles river, Mother brook, Neponset river and the sea, an area of about 57.8 square miles; the sewage to flow by gravity to a pumping station at Dorchester bay, there to be raised about 30 feet, and then flow through a siphon, under the Neponset river to Moon Island. The sewage from both lines was to be stored in large masonry reservoirs, constructed near the points of discharge, and run out during the first two or three hours after high water. The reservoir at Moon Island was designed to store about 25,000,000 gallons of sewage, representing somewhat more than twice the amount then discharged in six hours. The outfall sewer was to be able to carry 445 cubic feet per second, or over 280,000,000 gallons per day. This was the amount of sewage calculated to be received from a population of 1,000,000, allowing 150 gallons per day per inhabitant and an amount of storm water equal to one-fourth of an inch of rainfall per twenty-four hours. They apprehended that in

ten or fifteen years the population would increase so that the building of a high-level sewer to drain the greater part of the territory above grade 40, about 46 square miles, would be advisable and economical, as the sewage from that district would then be discharged by gravity into the reservoir at Moon Island, and greatly relieve the work at the pumping station.

The commissioners' report embodied in substance the principal features of the main drainage systems as they exist to-day, and are proposed for the future.

The adoption of the commissioners' plan, so far as it applied to the territory south of the Charles river, the portion of the city where improved sewerage was the most urgent, was recommended by the special committee to examine the report. A joint special committee to take charge of the construction of the proposed improved sewerage system to be built under the direction of the City Engineer was appointed.

Extensive float experiments were made at Spectacle, Thompson's, Castle and Moon Islands, to determine the force and direction of the tidal currents, and the most fitting site for discharging the sewage. Moon Island was found to be by far the most favorable for the reservoir and outfall work. The studies prosecuted to determine the location of the pumping station showed a good clay foundation at the Cow Pasture at Old Harbor Point. These and some other alterations, as building a tunnel under Dorchester bay, change of location of part of the main sewer, etc., were found advisable after an accurate survey of the proposed route had been accomplished; but the principal features of the original scheme, a main sewer with branch interceptors traversing the low coast line of the city, a pumping station, an outlet sewer, with a siphon under the Neponset river, and reservoirs for storing the sewage during the flood tide, were incorporated in the plan. The work began in July, 1876, was pushed rapidly forward, and the first contract let during 1877.

Owing to the unexpected difficulties encountered, and to the rise in price of labor and materials between the letting and finishing of the contracts, a large part of the main sewer was built below cost, and several of the contractors failed. Many difficulties were overcome, and problems new to engineering science were solved. A number of the old sewers, some of which were working satisfactorily, had to be rebuilt to accommodate the new grade.

As it was desirable to relieve the city from the evils of the old sewerage system as soon as possible, the new works were put into operation on Jan. 1, 1884, although considerable work remained to be done. The total cost of the improved sewerage to Jan. 1, 1888, was \$5,000,000.

The solution of the sewerage problem for the towns adjoining Boston by large intercepting sewers to carry the sewage to pumping stations, there to be raised to such a height that it would flow by gravity into the sea, the intercepting sewer on the north side for Cambridge, Everett, Malden, Chelsea, Winthrop, Somerville, etc., to discharge at Point Shirley, reservoirs storing the sewage during flood tide, a high-level sewer to drain the territory 40 feet above the low water plane, when the capacity of the main intercepting sewer of the district between the Charles and Neponset rivers should be exceeded, was embodied in the report of the commission of 1875.

Improved plans, including an additional trunk line skirting the southern boundary of the city, designed to relieve the country in the Neponset-river valley, were subsequently made by the City Engineer.

The building of a sewerage system for the cities and towns north of the Charles river was taken in hand by the State, which appointed the Board of Metropolitan Sewerage Commissioners in 1889, under whose jurisdiction the work was carried on and completed in 1895.

Interceptors receiving sewage from Melrose, Malden, Somerville, Woburn, Arlington, etc., unite in a large main sewer passing through Everett, Chelsea, East Boston and Winthrop to Deer Island, where it continuously discharges its contents into the sea. The reservoirs recommended in the original report of 1875 have not as yet been built.

The construction of this system, as well as the annual interest on the first cost, is borne by the municipalities and towns benefited according to the ratio of the valuation of each municipality or town to the total valuation of the tributary territory, and the annual cost of maintaining and operating the works is divided among those cities and towns according to the ratio of the population of each city and town to the total population of the tributary territory.

East Boston and Charlestown lie wholly within the system north of the Charles river, and by valuation Boston paid in 1896 on their account, 22 per cent of the cost of construction of the entire system, and of the interest on the cost, and 22.82 per cent of the annual cost for maintenance and operation.

In 1889 the work of extending the Boston main drainage from Huntington avenue and Parker street up the valley of the Charles river to the Waltham line, to abate the nuisance caused by emptying the sewage of Waltham, Watertown, Newton, Brighton, and Brookline into the Charles river, was placed in the hands of the Metropolitan Sewerage Commissioners. The building of the sewer was begun in 1890, and connections were allowed to all of the above towns in the spring of 1892.

The system outlined by the City Engineer for the Neponset-river valley, including Milton, Hyde Park, Dedham, parts of West Roxbury, Dorchester, Newton and Brookline, lying within that water-shed, was partially built by Boston, and later taken up by the Board of Metropolitan Sewerage Commissioners, who have practically completed the main sewer nearly to the West Roxbury line at the time of writing.

The sewage from the Metropolitan sewers in the Charles and Neponset-river valleys, together with sewage from the Boston and Dorchester main drainage works, is raised at the Dorchester pumping station a distance of 35 feet, allowing it to flow without further pumping through the tunnel under Dorchester bay to the reservoirs at Moon Island, where it is stored until one hour after the beginning of the ebb tide.

As the sewage from the Charles system was discharged at Gainsborough street into the original main city sewer, and flowed from thence to the sea by Boston's disposal works, it was necessary to contract with Boston for disposing of this additional amount of sewage. Conferences were held between the city and State officials, resulting in certain arbitrary sums being paid annually to Boston

up to the year 1896, although these amounts were considerably less than what the city would have received had the amounts been determined on the lines laid down by the Apportionment Commission of 1890. That commission determined the per cent of the interest and cost of construction and of annual cost of maintenance of the sewers built by the Board of Metropolitan Sewerage Commissioners that each city and town should pay for a period of five years. In 1895 when a new Apportionment Commission was appointed to determine the amounts to be paid by the several cities and towns in the Metropolitan sewerage district, it became necessary for the city of Boston to make a new settlement of the amount which should be paid for disposing of the sewage from the Charles and Neponset branches of the Metropolitan sewerage systems for a period of five years (1896-1900, inclusive). In January, 1895, negotiations began between the city officials and the Board of Metropolitan Sewerage Commissioners. Figures were made by the Superintendent of Streets, basing the amount to be paid Boston on the ratio of the amount of sewage contributed by the surrounding cities and towns to the amount of sewage contributed by Boston. Exception to those figures was taken by the Metropolitan Sewerage Commission in a letter dated Jan. 11, 1896, but in place of a computation on the same basis as that adopted by the Superintendent of Streets, changed to correspond with their criticisms, they forwarded a table showing that if their sewerage system was combined with the system of Boston, and the expenses of construction and interest borne according to the ratio of the respective valuations, and the expenses for maintenance borne according to the ratio of respective populations, that the total yearly cost to them for the Charles-river sewerage would be \$62,000, and as their expenses, exclusive of any sum paid Boston, were then about \$31,000 per year, they intimated that Boston should charge them not more than the difference (\$31,000) between their existing expenses and their expenses under any combination which they could get the authority of the Legislature to form, irrespective of what it cost the city of Boston to dispose of their sewage.

As the Metropolitan Sewerage Commissioners were not willing to accept the amounts proposed by Boston, the Superintendent of Streets, Mr. B. T. Wheeler, forwarded them a letter, which they received, offering to leave the amount to be paid Boston to three disinterested men, viz.: F. P. Stearns, E. C. Clarke, Joseph P. Davis, and to abide by their decision. No acknowledgment of this proposal was made.

Without further correspondence with Boston, the Metropolitan Sewerage Commission recommended to the Legislature "that the main trunk sewer of the Boston main drainage system, from the point at Gainsborough street, in Huntington avenue where the Charles-river system now connects with the main drainage system, to its outlet of discharge at Moon Island, the pumping station, storage basins, and discharge plant and sewers, should be taken, controlled and operated by the Commonwealth."

On the election of the Hon. Josiah Quincy to the mayoralty of Boston, the Metropolitan Sewerage Commission addressed a letter to him, stating their readiness to secure a settlement of the amounts to be paid Boston for disposing of the sewage from the Charles-river system. At a conference with the Sewerage Commissioners, it was decided that the engineering departments of the contracting

parties should compute the amount of sewage contributed by the Charles-river system in order to determine the division of expenses. Accordingly studies were begun by the Metropolitan Sewerage Commission and the Boston Street Department. While these studies were in progress, the Metropolitan Sewerage Commission submitted a bill to the Chairman of the Committee on Metropolitan Affairs authorizing the Commonwealth to acquire the Boston main drainage system by purchase or otherwise. At a hearing appointed by that committee, a verbal agreement was made by the city of Boston with the Board of Metropolitan Sewerage Commissioners to accept the provisional amount of \$27,000 for disposing of the sewage from the cities and towns in the Charles-river system after it entered the Boston main sewer at Gainsborough street, Boston, during the year 1896; it being understood that any amount should be paid to the city of Boston or to the Board of Metropolitan Sewerage Commissioners according to the balance shown by the computations then being made by the engineering departments.

Meanwhile the Board of Metropolitan Sewerage Commissioners, in their report of 1896, requested the Legislature to pass an Act as before requested, authorizing the Commonwealth to take the Boston main drainage system.

A study of the sewage contributed and anticipated from the Charles-river system for sixteen years (1895 to 1910, inclusive) was first made. This involved an extended investigation of the population, water consumption and sewage of Waltham, Watertown, Newton, Brookline, Brighton, and the part of Boston above Gainsborough street. Whenever possible, the population for 1895 was obtained from advance sheets of the State census. After the second count and publication of the census, these figures were revised. In determining the water consumption, use was made of the best data possessed by the Metropolitan Water Board, the Boston Water Board, and the State Board of Health.

As it was expected that the Neponset-river system would be in operation by Jan. 1, 1898, a study of the cities and towns in that system was also conducted. Milton, Hyde Park, Dedham, part of West Roxbury, and part of Dorchester came properly within that system. The city of Quincy lies almost wholly without that watershed and connects its sewerage with the Boston system, at a point below the tunnel at Squantum Head. Quincy uses, therefore, only the portion of the Boston sewerage system from Squantum to the sea, consisting of the outfall sewer, the reservoirs and the outlet sewer. Although Quincy does not lie within the Metropolitan sewerage district, yet in view of the connection with the Boston system and its possible absorption by the State Commission, a study of its population, water consumption and sewage was made.

The final figures adopted by the Metropolitan Sewerage Commission and the Boston Street Department for the Charles and Neponset valleys are as follows:—

**Population and Water Consumption of the Charles-river Valley System.**

DISTRICT.	Year.	Population.	Average Daily Water Consumption, per capita. Gallons.	Total Daily Water Consumption. Gallons.
Waltham .....	1895	20,876	59	1,222,000
	1900	23,600	70	1,652,000
	1905	28,300	75	2,122,000
	1910	34,000	80	2,720,000
Watertown.....	1895	7,788	40	312,000
	1900	9,300	54	502,000
	1905	11,200	58	650,000
	1910	13,400	62	831,000
Newton.....	1895	27,590	65	1,802,000
	1900	33,700	70	2,359,000
	1905	41,100	75	3,082,000
	1910	50,100	80	4,008,000
Brighton.....	1895	15,001	70	1,050,000
	1900	19,500	72	1,404,000
	1905	24,500	74	1,813,000
	1910	30,700	76	2,333,000
Brookline.....	1895	16,164	81	1,308,000
	1900	20,200	88	1,778,000
	1905	25,000	91	2,275,000
	1910	31,000	94	2,914,000
Part of Boston.....	1895	10,790	81	874,000
	1900	16,500	86	1,419,000
	1905	22,500	91	2,048,000
	1910	30,000	95	2,850,000
Charles-river District..	1895	98,209	67	6,568,000
	1900	122,800	74	9,114,000
	1905	152,600	79	11,990,000
	1910	189,200	83	15,656,000

**Population and Water Consumption of the Neponset-river Valley System.**

DISTRICT.	Year.	Population.	Average Daily Water Consumption per capita. Gallons.	Total Daily Water Consumption. Gallons.
Milton.....	1895	5,518	24	133,000
	1900	6,900	45	311,000
	1905	8,600	50	430,000
	1910	10,700	55	589,000
Hyde Park.....	1895	11,826	41	482,000
	1900	14,100	45	635,000
	1905	16,600	50	830,000
	1910	19,600	55	1,078,000
Dedham .....	1895	7,211	57	411,000
	1900	8,000	60	480,000
	1905	9,500	63	599,000
	1910	12,000	66	792,000
Part of W. Roxbury....	1895	2,030	60	122,000
	1900	4,000	63	252,000
	1905	8,000	66	528,000
	1910	13,000	69	897,000
Part of Dorchester....	1895	7,343	60	441,000
	1900	13,000	63	819,000
	1905	18,000	66	1,118,000
	1910	24,000	69	1,656,000
Neponset-river valley,	1895	33,928	47	1,589,000
	1900	46,000	54	2,497,000
	1905	60,700	59	3,575,000
	1910	79,000	63	5,012,000

The leakage, as determined by this division, was found to be about twenty-two gallons per capita per day, making the total amount of sewage from the Metropolitan sewer system as follows :—

*Sewage from the Charles-river Valley System.*

YEAR.	Population.	Average daily sewage per capita.	Total daily sewage discharge. Gallons.
1895 .....	98,209	89	8,729,000
1900 .....	122,800	96	11,816,000
1905 .....	152,600	101	15,347,000
1910 .....	189,200	105	19,819,000

*Sewage from the Neponset-valley System.*

1895 .....	33,928	69	2,335,000
1900 .....	46,000	76	3,509,000
1905 .....	60,700	81	4,910,000
1910 .....	79,300	85	6,750,000

The sewage contributed by Boston to the pumping station, together with that from the Metropolitan sewer system and the waste sea water from the manufactories constituted the total amount of sewage to be cared for.

The annual expense of disposing of the sewage was found to be \$1,465 per million gallons discharged daily.

Owing to the probable admission of the Neponset-river system in 1898 the maintenance account was divided into two parts : first, from 1895 to 1898; second, from 1898 to 1910.

The division of the expenses for disposal, according to the ratios of the respective populations for the period from 1895 to 1898 are given herewith.

DISTRICT.	Year.	Popu- lation.	Sewage.	By Popu- lation. Per cent.	Mainte- nance. Payment.
Charles-river system.....	1895	98,209	8,729,000	20.27	\$18,600
	1896	103,127	9,346,000	20.77	19,500
	1897	108,045	9,964,000	21.25	20,500
Boston, excluding East Boston.....	1895	386,200	50,592,000	79.73	73,100
	1896	393,220	51,509,000	79.23	74,500
C. R. V. and W. Roxbury in N. R. V.	1897	400,240	52,431,000	78.75	75,800
Tributary to Dorchester pumping station .....	1895	484,409	62,621,000	100.00	91,700
	1896	496,347	64,155,000	100.00	94,000
	1897	508,285	65,695,000	100.00	96,300

NOTE.—Total sewage includes 3,300,000 gallons waste sea water.

On the admission of the Neponset system in 1898, a portion of the Boston territory will pass under the jurisdiction of the Metropolitan Sewerage Commissioners. The division of expenses for disposal during the period of 1898 to 1910, inclusive, is as follows:—

DISTRICT.	Year.	Popula- tion.	Sewage.	By Popu- lation, Per cent.	Mainte- nance. Payment.
Charles-river valley.....	1898	154,133	13,620,600	27.29	\$28,000
	1899	161,465	14,472,800	28.64	29,000
and	1900	168,800	15,325,000	29.25	31,000
Neponset-river valley.....	1905	213,300	20,257,000	32.88	39,000
	1910	268,500	26,569,000	36.55	49,000
Boston, excluding East Boston, Charlestown, and parts in C. R. and N. R. V.....	1898	396,521	51,944,000	72.01	73,000
	1899	402,409	52,716,000	71.36	74,000
	1900	408,300	53,487,000	70.75	75,000
	1905	435,700	57,512,000	67.12	80,000
	1910	466,100	61,991,000	63.45	86,000
Tributary to Dorchester pumping station.....	1898	550,654	68,865,000	100.00	101,000
	1899	563,874	70,489,000	100.00	103,000
	1900	577,100	72,112,000	100.00	106,000
	1905	649,000	81,069,000	100.00	119,000
	1910	734,600	91,860,000	100.00	135,000

NOTE.—Total sewage includes 3,300,000 gallons waste sea water.

The total cost of that part of the Boston improved sewerage system which is utilized in disposing of the sewage from the tributary territory in question, comprises the original cost, together with the interest on the cost, up to the date when the city began to use said system. The interest on the total cost, at four per centum per annum, was apportioned between the Charles and Neponset-river districts and the city of Boston according to the ratio of their respective valuations in agreement with the award of the Apportionment Commission.

As far as known, no forecast of the growth of the valuation of the various cities and towns has been made heretofore.

These valuation studies, ranging from the year 1861 to 1910, presented many difficulties and consumed considerable time. As far as possible the property valuations as set forth in the "Aggregate of Polls, Property, Taxes, etc.,," as annually compiled by the Commonwealth, were used. The actual valuation of the portions of Boston tributary to the Metropolitan sewer system were deduced from a careful inspection of the assessors' books of the city of Boston.

The cost of that portion of the Boston main drainage works used by the Charles-river system was \$4,743,000; the interest upon which, borne according to the ratios of valuation, would be:—

## Interest—1895-1898.

DISTRICT.	Year.	Valuation.	Per cent.	Interest. Payment.
Charles-river valley.....	1895	\$183,884,413	17.94	\$34,000
Boston, excluding East Boston and Charlestown portions, in C. R. V. and W. Roxbury, in N. R. V.....	1895	841,135,048	82.06	156,000
Tributary to Dorchester pumping sta- tion.....	1895	1,025,019,461	.....	190,000

The cost of the Dorchester interceptor, omitting the portion between Granite bridge and Central avenue, which the State proposes to buy, which drains the Neponset system, would bring the total cost of the Boston drainage works used by the Charles and Neponset-river systems to \$5,134,000, the interest upon which should be borne as follows:—

## Interest—1898-1910.

DISTRICT.	Year	Valuation.	Per cent.	Interest. Payment.
Charles-river and Neponset-river val- leys.....	1898	\$232,226,534	21.78	\$45,000
	1900	284,400,000	22.35	46,000
	1905	341,000,000	24.24	50,000
	1910	400,000,000	25.61	53,000
Boston, excluding parts in C.R. & N.R. valleys, East Boston and Charles- town.....	1898	832,445,348	78.22	160,000
	1900	986,900,000	77.65	159,000
	1905	1,065,800,000	75.76	155,000
	1910	1,162,200,000	74.39	152,000
Tributary to Dorchester pumping sta- tion.....	1898	1,064,671,882	.....	205,000
	1900	1,271,300,000	.....	205,000
	1905	1,406,800,000	.....	205,000
	1910	1,562,200,000	.....	205,000

In a letter to the Metropolitan Sewerage Commissioners, dated Jan. 25, 1897, containing the above tables and a detailed account of their derivation, the Street Department stated that the amounts due Boston for disposing of the sewage from the Charles and Neponset systems, consisting of their proportionate share of the annual interest and the cost of maintenance and operation, were:—

For 1896 . . . . .	\$53,500	For 1900 . . . . .	\$77,000
" 1897 . . . . .	54,000	" 1905 . . . . .	89,000
" 1898 . . . . .	73,000	" 1910 . . . . .	102,000
" 1899 . . . . .	74,000		

No acknowledgment of the receipt of this letter has been made to the Street Department.

The first hearing before the Committee on Metropolitan Affairs on the bill of the Board of Metropolitan Sewerage Commissioners to authorize the Commonwealth to take the part of the Boston main drainage works used by the State is set for an early date in the ensuing month. The officials of the city will strenuously oppose the taking of this plant by the State, for the reasons that have been enumerated previously in this report.

During the past year this division has been able to make large and extensive repairs on the pumping-station through the generosity of the government authorizing special loans for that purpose.

During the ensuing year this division will advocate the extension of the storage reservoirs at Moon Island, the increasing of the present pumping powers of the pumps that are at present in the station, and also of the designing of a 60,000,000 high-duty pump. With these additions made to the works, the city will then be in condition to handle its sewerage and that of the Metropolitan district for a number of years. In all probability the pumping plant at Cow Pasture, with these additions, will be as large as this plant will ever need to be, as it will then have a capacity of over 200,000,000 gallons a day. The city should proceed with the designing and constructing of what is known as the high level sewers, which were advocated at the time that this plant was put in, so as to relieve the pumps.

#### VENTILATION OF SEWERS.

The subject of the ventilation of our sewer system is one that has received considerable attention in the past, but no practicable scheme has yet been evolved. A plan was at one time proposed for drawing out the foul air from the sewers by means of a large fan, or fans, situated at or near the outlets of the systems; but it is evident that this plan would not be practicable, because the fan would be supplied with air which would rush in through the perforations in the covers of the manholes on the system nearest to the point where the fan was located, and little or no effect would be felt in the sewer system at points more distant. Now, these distant points, that is, the summits of the system, are precisely the points where ventilation is most needed.

At the present time the perforations in the manhole covers are depended upon to keep the sewers ventilated, and in the summer time this system works fairly well, the only complaint being from some very particular persons, who observe the perforated manhole cover opposite their dwelling, and imagine they are exposed to infectious diseases from the emanations from the sewer. These persons are usually quieted by replacing the perforated cover by a closed cover, and the majority of citizens make no complaints.

There are, however, a few cases in which citizens suffer serious annoyance, where their dwellings are situated near the highest points or terminals of the sewer system upon steep hillsides, because at these places, owing to the steepness of the grade of the sewer, more foul air is probably thrown out at the extreme upper manhole, and less out of the others along the line of the sewer, than is the case in more level country where the sewers are laid on flatter grades. But, however satisfactorily the system may work in the summer time, it is a total failure in the winter, when the perforations in the manhole covers are completely sealed by snow and ice. At such times the system is entirely unventilated, and when, owing to a

sudden rain or thaw, the sewers are quickly filled with water, and their gaseous contents consequently expelled, the latter are undoubtedly forced into the houses through the traps.

It is, therefore, very desirable that a better system should be devised for ventilating the sewers, and one which will work at all seasons of the year. Some channel for the egress of the foul air should be provided at all the terminal points, or so called "dead ends," of the sewer system, for the reasons which have been just mentioned. Now it is evident that no opening can be left in the surface of the street, neither can any column or shaft be erected in the middle of the street, where the sewers are usually situated. The only location in the street which seems to be available is the same as is usually occupied by electric light or trolley poles; namely, the strip just back of the curbstone on the sidewalk. I recommend that tall iron columns or poles should be erected in these locations, just back of the curbstone, which columns should be hollow and large enough to go above the roofs of the surrounding buildings; these high columns or shafts to be connected by a pipe with the sewers, and thereby always afford a free outlet for the foul air of the sewers. The objection to this is, of course, that they would not be ornamental, but they might be used for some other purposes, as, for instance, the support of electric arc lights, and therefore be rendered not quite so objectionable or conspicuous. In the residential districts of the city these would not be excessively high; and in the business portion, where the high buildings are situated, it might be possible to make connections with high chimneys, by permission of the owners or by paying for the privilege, which would serve the same purpose.

#### FINANCIAL STATEMENT.

Sewer assessments have been made by this division for the year ending Jan. 31, 1897, in accordance with chap. 402 of the Acts of 1892, and amendments thereto, to the amount of \$193,078.28, and the bills have been deposited for collection with the City Collector.

Bills for sewer assessments, amounting to \$4,317.71, have also been deposited for collection, representing those estates assessed under chap. 456 of the Acts of 1889, and amendments thereto, which have made connection with the public sewers during the year, making the total amount of assessments deposited for collection \$197,395.99.

There remains on the books of this division, at 5 per cent interest, \$28,546.64, representing the assessments under the Acts of 1889, and amendments thereto, for those estates which have not been connected with the sewers for which they were assessed, and bills for which will be deposited for collection as the connections are made. This sum represents 21.5 per cent of the total assessments made under those Acts.

Entrance fees to the amount of \$3,196.21 have been collected from estates upon which no sewer assessment was ever paid, in accordance with chap. 36, sect. 10, of the Revised Ordinances.

Permits have been issued to licensed drain-layers to make 2,631 connections with the public sewers, and the work done under these permits has been inspected, and a record of same made on the plans of this division.

The following tables and statements will show the amount of money expended and work done by this division during the year:—

## Financial Statement.

APPROPRIATIONS,	Balances on hand Feb. 1, 1866,	Appropriations added during the year.	Total Credits.	Expenditures during the year.	Balances on hand Jan. 31, 1867.
Street Department, Sewer Division.....	* \$276,615 25	\$435,538 20	\$276,615 25	\$276,615 25	
Laying Out and Construction of Highways.....	.....	143,759 89	435,538 20	435,538 20	
Blue Hill and other avenues .....	.....	5,000 00	143,759 89	143,759 89	
Back Bay outlet.....	.....	25,000 00	5,000 00	5,000 00	\$5,000 00
Canal-street relief sewer.....	.....	25,000 00	25,000 00	25,000 00	17,462 03
Connections with Metropolitan sewer, Charlestown.....	.....	23,000 00	23,000 00	23,000 00	
Connection with Metropolitan sewer, East Boston,.....	.....	25,000 00	25,000 00	25,000 00	20,630 36
D-street outlet and relief sewer, Dorchester avenue, South Boston .....	.....	23,000 00	23,000 00	23,000 00	19,125 67
Forest-avenue section, temporary sewer outlet, etc., 17,116 65	.....	6,000 00	23,116 65	21,801 71	1,314 94
Pumping-station improvements.....	.....	10,000 00	10,000 00	5,017 75	4,982 25
Sewer outlet, Porter street.....	.....	16,000 00	16,000 00	.....	16,000 00
Sewer outlet (low level), West Roxbury district.....	7,824 64	.....	7,824 64	4,643 57	3,181 07
Sewers, South Boston.....	877 51	.....	877 51	82 80	794 71
Sewer outlets, South Boston.....	.....	35,000 00	35,000 00	18,895 08	16,104 92
Shamrock-street outlet.....	.....	8,000 00	8,000 00	958 05	7,041 95
Storm sewers, Cornwall and Washington streets, Ward 22.....	.....	3,500 00	3,500 00	2,903 52	596 48
Stony Brook Improvement.....	.....	100,000 00	100,000 00	98,150 74	1,849 26
Totals.....	\$302,434 05	\$858,798 09	\$1,161,232 14	\$1,024,148 50	\$137,083 64

In addition to the above there was expended, on account of paving division, for catch-basins, culverts and sewers, necessitated by street construction, the sum of \$48,894.84; also for sewers, necessitated by the construction of South Union Station, \$1,847.62, making a total of \$1,074,900.36.

\* Original appropriation.....

Less transferred.....

\$276,615 25

## OBJECTS OF EXPENDITURE.

## IMPROVED SEWERAGE.

Office Salaries . . . . .	\$500 00
Pumping station, inside . . . . .	44,863 02
Pumping station, outside . . . . .	14,028 47
Engines and boilers . . . . .	12,778 26
Main and intercepting sewers . . . . .	12,935 39
Moon Island . . . . .	13,459 76
Towboat . . . . .	4,874 48
	<hr/>
	\$103,439 38

## PUMPING STATION, FOREST-AVENUE SECTION, DORCHESTER.

Building and machinery . . . . .	\$13,797 42
Grading over gravity main . . . . .	378 75
	<hr/>
	\$14,176 17

## STONY-BROOK CHANNEL.

Maintenance . . . . .	\$15,003 78
Repairing Linden Park-street wall . . . . .	170 20
Repairing Boylston-avenue bridge . . . . .	427 03
Altering channel at Ruggles street . . . . .	1,299 15
	<hr/>
	\$16,900 16

## STONY-BROOK IMPROVEMENT.

Section 5 . . . . .	\$33,298 33
Section 6 . . . . .	46,880 45
Section 7 . . . . .	<hr/>
Centre street and private land . . . . .	141 59
Altering gate house . . . . .	2,081 58
Office and engineers, salaries . . . . .	10,246 35
Engineering expense . . . . .	2,383 36
Land damages . . . . .	2,278 75
Miscellaneous . . . . .	898 80
	<hr/>
	\$98,209 21

## MISCELLANEOUS.

Office expenses, including salaries of Deputy Superintendent, clerks and draftsmen, stationery, drawing materials, etc. . . . .	\$24,891 88
Engineering expenses, including salaries of engineers, instruments, etc. . . . .	58,778 70
Current expenses of yards and lockers . . . . .	23,927 07
Current expenses of stables, including cost of horses, vehicles, harnesses, etc. . . . .	\$34,369 25
Less amount earned by department teams . . . . .	9,413 00
	<hr/>
Repairing sewers . . . . .	24,956 25
Cleaning and flushing sewers . . . . .	7,146 44
Cleaning catch-basins . . . . .	8,211 19
Repairing streets . . . . .	29,528 11
Building, repairing and cleaning culverts and surface drains, not included in the Stony-brook system . . . . .	286 62
Examining condition of sewers and catch-basins . . . . .	16,792 35
	<hr/>
Carried forward . . . . .	\$4,065 81
	<hr/>
	\$198,584 42

## STREET DEPARTMENT — SEWER DIVISION. 367

<i>Brought forward.</i>	.	.	.	.	.	.	\$198,584 42
Work for departments and others	:	:	:	:	:	:	2,347 38
House connections	:	:	:	:	:	:	4,965 19
Damages and claims	:	:	:	:	:	:	619 87
Holidays	:	:	:	:	:	:	8,962 07
Travelling and incidental expenses	:	:	:	:	:	:	5,552 87
Repairs of department buildings, stables and yards	:	:	:	:	:	:	579 97
Engines and boilers and repairs	:	:	:	:	:	:	231 18
General repairs	:	:	:	:	:	:	1,230 74
Smoke inspection	:	:	:	:	:	:	1,312 00
Balances on old contracts	:	:	:	:	:	:	724 60
Hardware, tools and blacksmithing not included elsewhere	:	:	:	:	:	:	8,790 01
Rubber goods, not included elsewhere	:	:	:	:	:	:	1,275 88
							<hr/> \$235,176 18
Less over credit on water rates, charged off to sewer construction	:	:	:	:	:	\$6,133 51	
Less decrease in stock	:	:	:	:	:	<hr/> 1,015 54	
							<hr/> 7,149 05
							<hr/> <u>\$228,027 13</u>

**City Proper.**

*Sewers built between Feb. 1, 1896 and Feb. 1, 1897, by the City, either by Contract or Day Labor.*

Built in	Locality.	Length in Feet.	Dimensions and Material.	Remarks.	Expenditure during the fiscal year 1896-97.
Atlantic av.....	Congress st. and Pearl st.....	184.72	18-in., pipe.	Part rebuilding.....	\$1,308 99
Beach st.....	Harrison av. and Washington st.....	396.90	2 ft. 6 in. X 3 ft., brick.	Part rebuilding.....	4,804 43
Court st. and Bul-	{ End of old sewer and	325.34	12-in., pipe.	.....	1,302 19
finch st.....	Balfinch pl.....	218.00	5 ft. X 5 ft. 3 $\frac{1}{2}$ in., brick.	Rebuilding.....	7,496 37
Central st.....	Atlantic av. and India st.....	409.13	2 ft. 6 in. X 3 ft., brick.	Overflow sewer.....	7,665 85
Congress st.....	Atlantic av. and Sea wall.....	8.67	In tide-gate manhole.	Part rebuilding.....	
Dundee st.....	Dalton st. and Massachusetts av.....	683.65	12-in., pipe.	.....	2,182 86
Endicott st. and	{ End of old sewer and.....	498.80	2 ft. 8 in. X 4 ft., brick.	Rebuilding.....	11,693 83
Thacher st.....	{ North Margin st.....	175.24	2 ft. 6 in. X 3 ft., brick.	.....	1,202 59
Palmouth st. and	Dalton street and	238.97	2 ft. 6 in. X 3 ft. 3 in., brick.	.....	
Norway st.....	Huntington av.....	127.84	2 ft. X 2 ft. 7 in., brick.	Piles and rebuilding.....	9,252 35
Laconia st. ....	Washington st. and Harrison av.....	81.30	12-in., pipe.	Rebuilding.....	\$79 00
Malden st.....	Albany st. and Harrison av.....	304.05	12-in., pipe.	.....	
North Market st..	{ Commercial st. and Mer-	470.30	12-in., pipe.	Paid for by Public	
	chants row.....	7.50	In tide-gate chamber.	Buildings Department.....	
South Russell st..	Cambridge st. and Myrtle st..	636.66	12-in., pipe.	Contract. Rebuilding.	
Tyler st.....	Oak st. and Curve st.....	325.95	2 ft. X 3 ft., brick.	{ Rebuilding. Old	1,400 94
Tyler st.....	Kneeland st. and Harvard st..	288.97	2 ft. X 3 ft., brick.	{ sewer removed.	
Unity st. and	Charter st. and Revere pl.....	19.80	20-in., iron pipe.	{ Gravel refilling...	21,252 92
Webster av....		321.17	12-in., pipe.	Rebuilding piles.....	
				Rebuilding .	892 33

*Sewers built between Feb. 1, 1896 and Feb. 1, 1897, by the City, under Chapter 323 of the Acts of 1891, as amended by Chapter 418 of the Acts of 1892, or Special Acts referring thereto.*

Clinton st. ....	Commercial st. and Fulton st.	<table border="0"> <tr> <td>169.45</td><td>12-in., pipe, sewer.</td></tr> <tr> <td>50.83</td><td>10-in., pipe, C. B. drain.</td></tr> <tr> <td>28.00</td><td>6-in., pipe, house drain.</td></tr> <tr> <td></td><td>3 catch-basins.</td></tr> </table>	169.45	12-in., pipe, sewer.	50.83	10-in., pipe, C. B. drain.	28.00	6-in., pipe, house drain.		3 catch-basins.	<table border="0"> <tr> <td>Contract.....</td><td>.....</td></tr> </table>	Contract.....	.....	\$842 36
169.45	12-in., pipe, sewer.													
50.83	10-in., pipe, C. B. drain.													
28.00	6-in., pipe, house drain.													
	3 catch-basins.													
Contract.....	.....													
25 new catch-basins and drop-inlets built and 107 repaired.....				<table border="0"> <tr> <td>\$72,178 01</td><td></td></tr> <tr> <td>6,085 48</td><td></td></tr> </table>	\$72,178 01		6,085 48							
\$72,178 01														
6,085 48														

*Sewers built between Feb. 1, 1896, and Feb. 1, 1897, by Private Parties.*

Built in	Locality.	Length in Feet.	Dimensions and Material.	Remarks.															
	Between																		
Allston pl. ....	Allston st., southerly .....	120.80	10-in., pipe.																
Dix pl. ....	Washington st., westerly .....	325.73	12-in., pipe.																
Eliot st. ....	Tremont st. and Park sq. ....	12.00	20-in., pipe.																
Hanover st. ....	Washington st. and Court st. ....	<table border="0"> <tr> <td>401.00</td> <td>15-in., pipe.</td> </tr> <tr> <td>179.00</td> <td>2 ft. X 3 ft., brick.</td> </tr> <tr> <td>30.00</td> <td>30-in., iron pipe.</td> </tr> <tr> <td>162.00</td> <td>20-in., pipe.</td> </tr> <tr> <td>97.00</td> <td>18-in., pipe.</td> </tr> <tr> <td>291.00</td> <td>15-in., pipe.</td> </tr> <tr> <td>149.00</td> <td>12-in., pipe.</td> </tr> <tr> <td></td> <td>10-in., pipe.</td> </tr> </table>	401.00	15-in., pipe.	179.00	2 ft. X 3 ft., brick.	30.00	30-in., iron pipe.	162.00	20-in., pipe.	97.00	18-in., pipe.	291.00	15-in., pipe.	149.00	12-in., pipe.		10-in., pipe.	Siphon at Washington st.
401.00	15-in., pipe.																		
179.00	2 ft. X 3 ft., brick.																		
30.00	30-in., iron pipe.																		
162.00	20-in., pipe.																		
97.00	18-in., pipe.																		
291.00	15-in., pipe.																		
149.00	12-in., pipe.																		
	10-in., pipe.																		

City Proper.—Concluded.

*Servers built between Feb. 1, 1897 by Private Parties.*

LOCALITY.	Built in	Between	Length in feet.	Dimensions and Materials.	Remarks.
	Haymarket sq. ....	Portland st. ....			
Haymarket sq. ....	.....	Hanover st. and Sudbury st. ....	55.00	2 ft. 6 in. X 2 ft. 9 in., wood,	
Portland st. ....	.....	Common st. and Pleasant st. ....	101.30	18-in., pipe,	
Shawmut av. ....	.....	Boylston st. and Warren st. ....	61.10	12-in., pipe.	
Tremont st. ....	.....	St. James st. and Railroad. ....	292.70	18-in., pipe.	
Trinity pl. ....	.....	Elm st. and Haymarket sq. ....	238.50	12-in., pipe.	
Washington st. ....	.....	.....	125.50	10-in., pipe.	
		.....	852.00	12-in., pipe.	
		.....	949.00	10-in., pipe.	
		.....	185.80	12-in., pipe.	
		.....	159.00	2 ft. circular brick.	
		.....	28.00	12-in., pipe.	
		.....	80.00	8-in., pipe.	

*Surplus Drains built between Feb. 1, 1896, and Feb. 1, 1897, on the City, either by Contract or Day Labor.*

Surface Drains built between Feb. 1, 1896, and Feb. 1, 1897, by Private Parties.			
			Extension of outlet.
Summer st. ....	174.00	3 ft. X 3 ft., wood.....	Extension of outlet. Part contract.
Boston Common..	624.00	8-in., pipe.	
Park st. and	16.25	10-in., pipe.	
Tremont st... {			

East Boston.

*Sewers built between Feb. 1, 1896, and Feb. 1, 1897, by the City, either by Contract or Day Labor.*

*Sewers built between Feb. 1, 1896, and Feb. 1, 1897, by the City, either by Contract or Day Labor.*

**Charlestown.**

LOCALITY.		Length in feet.	Dimensions and Material.	Remarks.	Expenditure during the fiscal year 1896-97.
Built in	Between				
Aiford st. ....	Connection with Metropolitan Sewer.....	225.00	15-in. pipe.	1 stump manhole, 1 tide gate manhole.....	\$2,384 13
Chelsea st. ....	Connection with Metropolitan Sewer at Vine st. ....	{ 120.76 24.02	4 ft. X 4 ft. 3 in., brick. 18-in., pipe.	Rebuilding .....	2,316 61
Parker st. ....	Cambridge st. and Hadley st. ....	{ 24.40 107.60	12-in., pipe. 1-in., pipe.	Rebuilding .....	668 62
St. Martin st. ....	Medford st. and Bunker Hill st.	528.10	122-in., pipe.....	1,493 04	
					\$6,772 40
					3,345 62
					\$10,118 02
	6 new catch-basins and drop-inlets built, and repaired .....				

**South Boston.***Sewers built between Feb. 1, 1896, and Feb. 1, 1897, by the City, either by Contract or Day Labor.*

B and Seventh sts. outlet.....	Dorchester av. and South Bay, (Dor-st. outlet, so called.)	480.00 31.43 76.64 591.84 62.73 33.63 244.42 171.00 290.51 251.03 139.97 230.38 205.20 88.77	6 ft. 6 in., circular brick. 2 ft. 6 in., circular brick. 3 ft. 3 in., circular brick. 3 ft. X 4 ft., wood. 2 ft. X 3 ft., brick. 4 ft. X 3 ft. 6 in., brick. 4 ft. X 4 ft. 3 in., brick. 24-in., pipe. 15-in., pipe. 24-in., pipe. 12-in., pipe. 2 ft. X 3 ft. brick. 2 ft. X 3 ft. brick. 2 ft. 4 in. X 3 ft. wood.	Rebuilding..... Rebuilding..... Rebuilding..... Rebuilding..... Rebuilding..... Rebuilding..... Rebuilding..... Rebuilding..... Rebuilding..... Rebuilding..... Rebuilding..... Rebuilding..... Rebuilding..... Rebuilding.....	\$18,475 58 5,799 35 4,202 25 1,010 91 1,529 30 1,056 37 2,406 67 1,790 01 \$36,270 44 4,611 05 \$40,881 49
D st. and Dorches- ter av. overflow.	Dorchester av. and South Bay,				
D st. ....	West First st. and West Sec- ond st. ....				
E st. ....	Seventh st. and Eighth st. ....				
Private land along O. C. R.R. ....	Jenkins st. and Boston pl. ....				
Rawson st. ....	Existing sewer and 125 feet easterly .....				
West Second st. ....	E st. and D st. ....				
Vinton st. outlet in private land....	O. C. R.R. and tide water....				
		2,897.55			
11 new catch-basins and drop-inlets built and 75 repaired .....					

**South Boston.—Concluded.***Sewers built between Feb. 1, 1896, and Feb. 1, 1897, by Private Parties.*

LOCALITY.		Length in feet.	Dimensions and Material.	Remarks.
Built in	Between			
A st.....	Congress st. and N. Y. & N. E. R.R.....	723.83	12-in., pipe.	
L st.....	East Seventh st. and East Eighth st.....	255.22	12-in., pipe.	
		979.05		

**Roxbury.***Sewers built between Feb. 1, 1896, and Feb. 1, 1897, by the City, either by Contract or Day Labor.*

LOCALITY.		Length in Feet.	Dimensions and Material.	Remarks	Expenditure during the fiscal year 1896-97.
Built in	Between				
Andnbon road .....	Beacon st. and Brookline branch R.R.....	897.06	12-in., pipe.....	.....	.....
Beacon st. ....	Kennmore st. and Charlesgate west.....	50.00	15-in., pipe.....	.....	\$5,007 30
Bickford st. ....	Bromley park and Centre st...	332.75	12-in., pipe.	.....	122 13
					641 88

			Rebuilding. Cost shown under Stony- brook improvement
Columbus av. ....	Centre st. and Pennyth st. ....	530.00	10-in., pipe.
Dorchester - Brook sewer .....	Norfolk av. and George st. .... Westerly from Day st. ....	541.00 442.85	8 ft. 6 in. X 8 ft., brick. 12-in., pipe. ....
Evergreen st. ....	Reed st. and Washington st. ....	275.85	10-in., pipe. ....
Flagg st. ....	Massachusetts av. and Norfolk av. ....	106.59	15-in., pipe. ....
Gerard st. ....		823.00	3 ft. 6 in. X 5 ft. 6 in., brick. 2 ft. 2 in. X 3 ft. 3 in., brick.
Shawmut av., Roxbury st. and Guild row ...	{ Vernon st. and Dudley st. .... { Lamartine st. and Stony- private land.... brook valley. ....	16.00	{ Rebuilding. .... { Built in 1895. .... { Built in 1895. ....
Heath st. ....	Day st. and Lawn st. ....	402.40	12-in., pipe. ....
Kearsarge av. ....	Warren st. and Winthrop st. ....	243.96	12-in., pipe. ....
Munroe st. ....	Walnut av. and existing sewer,	278.70	2 ft. 6 in. X 3 ft., brick.
Northampton st. ..	Albany st. and Fellows st. ....	7.72	20-in., pipe. ....
Old Heath st. and Parker st. ....	{ Columbus av. .... { and New Heath st. ....	729.15 180.48	{ 3 ft. X 3 ft. 2½ in., brick. 24-in., pipe.
Ward st. ....	Hallock st. and N.Y., N.H. & H.R. ....	275.08 434.92	Rebuilding. ....
Wensley st. ....	New Heath st. & Bickford av.,	264.98 340.50	{ 18-in., pipe. { 12-in., pipe. ....
Willow park ....	Shawmut av. and passageway,	22.00	{ 10-in., pipe. .... { 10-in., iron pipe. ....
West Roxbury low-level sewer....	Existing sewer and Amory st.,	159.00	2 ft. X 3 ft. 6 in., brick.
			4,585 75

**Roxbury. — Concluded.**

*Sewers built between Feb. 1, 1896, and Feb. 1, 1897, by the City, under Chapter 323 of the Acts of 1891, as amended by Chapter 418 of the Acts of 1892, or Special Acts referring thereto.*

Built in	LOCALITY. Between	Length in Feet.	Dimensions and Material.	Remarks.	Expenditure during the fiscal year 1896-97.
Audubon road . . .	Beacon st. and Ivy st. . . . .	{ 6.00 242.05 21.55 61.00	{ 18-in., pipe, sewer. 12-in., pipe, sewer. 10-in., pipe, C.B. drain. 8-in., pipe, house drain. 2 catch-basins.	{ Contract . . . . . } Built in 1895 . . . . . Files.	{ \$631 13 179 85
Abbottsford st. . . .	Walnut av. and Harold st. . . .	{ 796.78 19.67 15.85	{ 2 ft. 8 in. X 3 ft. 6 in., brick sewer. 16 in., iron pipe, sewer. in tide-gate manhole, and connection.	{ Contract . . . . . } Built in 1895 . . . . .	{ 21,464 02 119 36
Boylston st. . . . .	Brookline av. and Back Bay Fens. . . . .	{ 17.10 618.30 789.90 263.50 219.60 515.10	{ 30-in., pipe, C.B. drain. 24-in., pipe, C.B. drain. 18-in., pipe, C.B. drain. 15-in., pipe, C.B. drain. 12-in., pipe, C.B. drain. 10-in., pipe, C.B. drain. 13 catch-basin. 11 drop inlets.	{ Contract . . . . . } Built in 1895 . . . . .	{ 21,464 02 119 36
Bay State road . . .	Sherborn st. and Granby st. . . . .				

Fullerton st. ....	Brookline av. and Fairhaven st. ....		Just begun, no measure- ment taken. ....	85 20
Granby st. ....	Commonwealth av. and Char- les river ....		Built in 1855. ....	14 26
Ruggles st. ....	Parker st. and Back Bay Fens	756.00	2 ft. 6 in. × 3 ft., brick sewer.	
St. Alphonsus st. ....	Tremont st. and Calumet st. ....		Piles. Contract. ....	5,218 93
Vancouver st. ....	Ruggles st. and Huntington av. ....		Built in 1895. ....	618 16
			Just begun, no measure- ment taken. ....	159 33
<i>Boulevards.</i>				
Columbus av., Sect. 1. ....	Northampton st. and Franklin Park ....	4.00	10-in., pipe, C.B. drain. 2 drop inlets.	Contract. ....
			15-in., pipe, C.B. drain.	
			10-in., pipe, C.B. drain.	
		.80	2 ft. 6 in. × 3 ft., brick sewer.	Day labor. Rebuilding.
Columbus av., Sect. 2. ....	Northampton st. and Franklin Park ....	{ 43.65 229.35 274.50 256.85	18-in., pipe sewer. 15-in., pipe, C.B. drain. 12-in., pipe, C.B. drain. 10-in., pipe, C.B. drain 10 catch basins. 3 drop inlets.	{ \$2,816 55 Contract. .... 7,832 24

*Boulevards.*

BUILT IN	LOCALITY.			DIMENSIONS AND MATERIAL.	REMARKS.	EXPENDITURE DURING THE FISCAL YEAR 1896-97.
		BETWEEN	FEET.			
Columbus av., Sect. 3 . . . . .	Northampton st. and Franklin Park . . . . .	{ 278.50 267.75	{ 3 ft. 6 in. X 3 ft. 8½ in., brick sewer 2 ft. 6 in., X 3 ft. brick sewer	{ 10.80 11.20	{ 3 ft. circular brick sewer. 3 ft. 6 in. X 4 ft. 4 in., brick sewer. 24-in., C.B. drain.	{ Piles.
	Connection with intercepting sewer in Linden Park st. . . . .	{ 173.27 853.50 173.27 493.40 172.87 1,338.49	{ 853.50 173.27 18-in., pipe, sewer. 15-in., pipe, sewer. 15-in., pipe, C.B. drain. 12-in., pipe, sewer.	{ 12-in., iron pipe. 12-in., pipe, C.B. drain. 10-in., pipe, C.B. drain. 8-in., pipe, house drain 6-in., pipe, house drain. 13 catch basins. 3 drop inlets.	{ Contract, . . . . . \$16,895 19	
	Outlet through Terry st. . . . .	{ 25.06 308.73 339.50 15.86 61.75	{ 25.06 308.73 339.50 15.86 61.75	{ 12-in., pipe, C.B. drain. 8-in., pipe, house drain 6-in., pipe, house drain.	{ Converted into West Roxbury sewer.	
	Concreting invert in old conduit.	708.60				

*Surface drains built between Feb. 1, 1896, and Feb. 1, 1897, by the city, either by Contract or Day Labor.*

LOCALITY.	Built in	Between	Length in Feet.	Dimensions in Material.	Remarks.
Anthony brook . . . . .	Stony brook gate-house and Centre street . . . . .		1,180.00	15 ft. 6 in. × 17 ft., brick	

**Roxbury.** — *Concluded.*  
*Sewers built between Feb. 1, 1893, and Feb. 1, 1897, by Private Parties.*

Built in	LOCALITY. Between	Length in Feet.	Dimensions and Material.	Remarks.
Bynner st.....	Jamaica Way and Day st.....	980.00	10-in., pipe.	
Cahumet st.....	Hillside st. and Parker Hill av.	{ 535.23 683.30	12-in., pipe. 10-in., pipe.	
Centre st.....	Amory st. and Wise st.....	{ 244.39 262.62	18-in., pipe. 12-in., pipe.	Part rebuilding.
Harold-st. exten... Lamartine st..... Langdon st..... Passageway.....	Walnut av. and Munroe st.... Southerly from Centre st.... Norfolk av. and George st.... West of Parker st. near Boylton st.....	{ 461.00 180.56 597.65	12-in., pipe. 12-in., pipe. 18-in., pipe.	Part rebuilding.
Plaut av..... Private land..... Roswell st.....	Parker st. and Bickford st.... Hillside st. and Calumet st.... Shirley st. and Langdon st....	{ 51.28 169.02 239.00 175.38	12-in., pipe. 12-in., pipe. 10-in., pipe. 12-in., pipe.	
<i>Surface drains built between Feb. 1, 1896, and Feb. 1, 1897, by Private Parties.</i>				
Bynner st.....	Jamaica way and Day st.....	{ 940.00 268.15	15-in., pipe. 10-in., pipe.	

**West Roxbury.***Sewers built between Feb. 1, 1896, and Feb. 1, 1897, by the city, either by Contract or Day Labor.*

Built in	Locality.	Length in Feet.	Dimensions and Material.	Remarks.	Expenditure during the fiscal year 1896-97.
Between					
Angell st. ....	Blue Hill av. and Canterbury st.	937.40	12-in., pipe .....		\$1,355 84
Beech st. ....	Anawan and Newburg sts. ....	{ 200.45 1,445.99	15-in., pipe .....		2,988 68
Birch st. ....	Corinth and South sts. ....	{ 275.15	12-in., pipe .....		496 01
Bourne and Walk Hill sts. ....	Patten st. and Hyde Park av. Existing sewer to summit in Louder's lane. ....	578.00	15-in., pipe .....		4,600 73
Centre st. and Louder's lane. ....	Boylston st. and Boylston ter.	499.08	12-in., pipe .....		1,384 91
Centre st. ....	Robinwood st. & Lochistion st. Pomfret and Montview sts. ....	349.90	12-in., pipe .....		3,592 91
Corey st. ....	Centre st. and 325 ft. westerly, Existing sewer and Wyman st.	182.00	15-in., pipe .....		1,842 42
Danforth st. ....	Franklin pl. & Hyde Park av.	591.75	12-in., pipe .....		1,522 27
Franklin pl. ....	Hyde Park av. & Florence st.	326.88	12-in., pipe .....		1,257 25
Private land..	Florence st. and Bourne st. ....	283.71	12-in., pipe .....		1,183 85
Hyde Park av. ....	To Canterbury st. ....	5,190.90	15-in., pipe .....		22,763 34
Private land..	To Bourne st. ....	802.90	12-in., pipe .....		
Florence st. ....	Bourne st. & Walk Hill st. ....				
Private land..	Canterbury st. ....				
Bourne st. ....	Walk Hill st. About 1,400 feet southerly..				

## West Roxbury.—Continued.

Sewers built between Feb. 1, 1896 and Feb. 1, 1897 by the city, either by Contract or Day Labor.

Built in	Locality,	Length in Feet.	Dimensions and Material.	Remarks.	Expenditure during the fiscal year 1896-97.
	Between				
Hyde Park av.	Walk Hill st. & 1,040 ft. so'ly,	1,040 94	12-in., pipe .....	Built in 1895 .....	2,345 48
Hewlett st. ....	Walter and Centre sts. ....	282.27	12-in., pipe .....	Built in 1895 .....	316 64
Jamaicaway ....	Castleton and Perkins sts. ....	.....	.....	.....	2,728 26
Jamaicaway ....	Perkins and Pond sts. ....	.....	.....	.....	125 77
Kirk st. and Mont- view st. ....	.....	.....	.....	.....	.....
Landseer st. ....	Bellevue and LaGrange sts. ....	105.86	12-in., pipe .....	Built in 1895 .....	558 03
Lanmartine pl. ....	Off Lanmartine st. ....	356.40	12-in., pipe .....	Built in 1895 .....	80 64
Montview st. ....	Corey st. to Kirk st. ....	.....	.....	.....	219 39
Private land, Mo- zart, Selwyn, and a n d Arundel sts. ....	Hewlett and Walter sts. and Centre st. ....	967.00	18-in., pipe .....	.....	926 95
Sedgwick st. ....	Outlet and 120 ft. easterly....	118.47	12-in., pipe .....	.....	5,688 90
Wheaton st. ....	Off Lanmartine st. ....	29.00	18-in., pipe .....	.....	207 25
Willow st. ....	Weld st. and 750 ft. southerly....	.....	.....	Built in 1895 .....	359 64
					84 28
					\$57,259 53
					1,434 74
					\$58,694 27
				12 new catch-basins and drop-inlets built and 25 repaired.....	
					14,624.23

*Surface Drains built between Feb. 1, 1896 and Feb. 1, 1897, by the City, either by Contract or Day Labor.*

Built in	Locality.	Dimensions and Material.		Remarks.
		Length in Feet.	Between	
Bourne st. and Walk Hill st. ....	Patten st. and Hyde Park av.	{ 259.87 84.30	15-in., pipe. 12-in., pipe.	
Cornwall st. and Washington st. ....	Stony brook and Forest Hills st. ....	{ 248.17 719.65	30-in., pipe. 24-in., pipe.	

*Surface Drains built between Feb. 1, 1896 and Feb. 1, 1897, by Private Parties.*

Eldridge road, ....	Hyde Park av. and Nathan road. ....	{ 411.25 118.75	20 in. × 30 in., brick.
Hampsted road, ....	South st. and Parkway. ....	{ 50.00 376.00	15-in., pipe. 12-in., pipe.
Nathan road, ....	Eldridge road and Patten st. ....	{ 32.00 573.08	10-in., pipe. 20-in., pipe.
Patten st. ....	Bourne st. and Hyde Park av. ....	{ 471.35 150.00	12-in., pipe. 12-in., pipe.
Road No. 8, ....	Eldridge road and 150 ft. southerly. ....	100.00	12-in., pipe.
Wachusett st. ....	Eldridge road and Walk Hill st. ....	542.45	12-in., pipe.

**West Roxbury.**—Concluded.  
*Sewers built between Feb. 1, 1896, and Feb. 1, 1897, by Private Parties.*

BUILT IN	LOCALITY BETWEEN	DIMENSIONS AND MATERIAL.		REMARKS.
		LENGTH IN FEET.		
Aldrich st. ....	Beech st. and about 350 ft. northeasterly.....	332.85	12-in., pipe.	
Aldworth st. ....	Centre st. and Vane st. ....	814.48	12-in., pipe.	
Barbara st. ....	Off Centre st. ....	359.48	12-in., pipe.	
Crest st. ....	Kirk st. and Mt. Vernon st. ....	431.42	12-in., pipe.	
Colburg av. ....	Beech st. and Montello st. ....	521.10	12-in., pipe.	
Eldridge road. ....	Hyde Park av. and Nathan road.....	597.62	12-in., pipe.	
Hampsted road. ....	South st. and Parkway.....	1,056.00	8-in., pipe.	
Houston st. ....	Montview st. and Crest st. ....	272.85	12-in., pipe.	
Keyes st. ....	Washington st. and Stony Brook.....	223.60	6-in., pipe.	
Lorraine st. ....	Colberg av. and 275 feet north- erly .....	275.22	12-in., pipe.	
Lochstead av. ....	Centre st. toward Spring st. ....	54.91	12-in., pipe.	
Nathan road. ....	Eldridge road and Patten st. ....	462.79	12-in., pipe.	
Patten st. ....	Bourne st. and Hyde Park av. ....	471.35	12-in., pipe.	
Road No. 8. ....	Eldridge road and 150 feet southerly.....	125.20	12-in., pipe.	
Rodman st. ....	Wachusett st. and Patten st. ....	608.78	12-in., pipe.	
Wachusetts st. ....	Eldridge road and Walk Hill st. ....	542.45	12-in., pipe.	

Culverts built between Feb. 1, 1896, and Feb. 1, 1897, by Private Parties.

Hyde Park av. ....	At Eldridge road.....	55.80	4 ft. 6 in. $\times$ 5 ft., stone culvert, with brick arch.
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### Dorchester.

Sewers built between Feb. 1, 1896, and Feb. 1, 1897, by the City, either by Contract or Day Labor.

Built in	LOCALITY.	Length in Feet.	Dimensions and Material.	Remarks.	Expenditure during the fiscal year 1896-97.
	Between				
Adams st. ....	King st. and Lonsdale st. ....	116.23	30-in. $\times$ 36-in., brick.	Some rock, .....	\$2,849 93
Bowdoin st. ....	Quincy st., about 150 ft. southerly.....	185.20	12-in., pipe.	.....	633 48
Chapman av. ....	Lyons st and private land....	{ 22.40 674.00	24-in., brick. 24-in., pipe.	{ All rock, .....	23,767 61
Private land.....	Chapman av. and Lauriat av. ....	{ 909.84 44.00	24-in., pipe. 18-in., pipe.	.....	
Dorchester av. ....	Washington st. and Belmond st. ....	640.41	12-in., pipe.	All rock, .....	4,409 31
Lawrence av. ....	Existing sewers.....	107.85	12-in., pipe.	Much rock, .....	392 66
Lyons st. ....	Chapman av. and Franklin Field.....	{ 1,109.36 38.63	30-in., Akron pipe. 30-in., iron pipe.	{ Some rock, .....	11,140 99
Franklin Field....	Lyons st. and Talbot av. ....	{ 36.73 30-in., brick.	.....	.....	
Forest av., trunk sewer, Sect. 2, in Norfolk st. ....	Balloon av. and Private pl. ....	292.00	15-in., pipe.	Much rock, .....	1,586 20
Private land.....	Norfolk st. and Morton and Evans st. ....	.....	.....	.....	
Morton st. ....	Evans st. and Selden st. ....	.....	.....	.....	

*Sewers built between Feb. 1, 1896, and Feb. 1, 1897, by the City, either by Contract or Day Labor.*

Built in	Locality.	Length in Feet.	Dimensions and Material.	Remarks.	Expenditure during the fiscal year 1896-97.
Parkway.....	Pond st. and Dorchester av...	430.97	12-in., pipe.....		\$2,437 72
Private land.....	Lawrence av. and Stanwood st.	{ 1,300.00 48.00	15-in., pipe. 12-in., pipe.	{	10,170 49
Robinson st.....	Adams st. and Draper st.....	.....	.....		.....
Rosemont st.....	Dorchester av. and Samoset st.	.....	.....	Built in 1895.....	309 29
Richmond st.....	Dorchester av. and Washington st.....	{ 256.63 28.00	12-in., pipe. 8-in., pipe.	{	494 36
Shamrock st., outlet	Freeport st. and tide water st.	.....	.....	All rock.....	1,768 73
Shawmut Park, proposed extension.	Lonsdale st. and Templeton st.	{ 392.89 198.50	18-in., pipe. 12-in., pipe.	{	.....
Edwin st.....	Adams st. and Dorchester av..	{ 1,237.99 432.05	12-in., pipe. 15-in., pipe.	{	6,069 61
Templeton st.....	Adams st. and existing sewer.	{ 1,167.38 620.04	12-in., pipe. 12-in., pipe.	{	.....
Stoughton st.....	Salcombe st. and Sumner st...	.....	.....	Just begun; no measurement taken.....	929 21
<i>Sewers built between Feb. 1, 1896, and Feb. 1, 1897, by the City, either by Contract or Day Labor.</i>					
Washington st.....	Dorchester intercepting sewer and Miller's lane.....	453.60	12-in., pipe	Considerable rock.....	\$1,261 26
Washington st.....	Dorchester Lower Mills, main sewer and Fairmount st.....	{ 442.49 1,279.59	15-in., pipe 12-in., pipe	{ Very much rock.....	4,418 75
Forest av., trunk sewer, Sect. 1, in Willowwood st..	Lauriat av. and Ballou av...	{ 865.49 336.00	18-in., pipe 15-in., pipe	{ Very much rock.....	4,679 41
Ballou av.....	Willowwood st and Norfolk st.	158.00	15-in., pipe	{	

*Sewers built between Feb. 1, 1896, and Feb. 1, 1897, by the City, under Chapter 323 of the Acts of 1891, as amended by Chapter 418 of the Acts of 1892, or Special acts referring thereto.*

Chamberlain st. ....	Harvard st. and Algonquin st. ....	148.15 403.00 64.00	12-in., pipe sewer. 6-in., pipe, house drain. 10-in., C. B. drain. 5 catch-basins.	Contract.	\$910 77
Fenelon st. ....	Merrill st. and Washington st. ....	36.68 180.00 36.50	12-in., pipe sewer. 6-in., pipe, house drain. 10-in., pipe, C. B. drain. 3 catch-basins.	Contract.	648 78
Gaylord st. ....	Washington st. and Chamber- lain st. ....	324.60 403.00 38.00	12-in., pipe sewer. 6-in., pipe, house drain. 10-in., pipe, C. B. drain. 2 catch-basins.	Contract.	927 93
Geneva av. ....	Park st. and Dorchester av.	421.34 621.00	12-in., pipe sewer. 6-in., pipe, house drain.	Contract.	4,597 48
Park st. ....	Dorchester av. and Geneva av. ....	244.60 170.14	15-in., pipe, C. B. drain. 12-in., pipe, C. B. drain. 3 catch-basins.		
Greenbrier st. ....	Bloomfield st. and Bowdoin st. ....	33.75 35.00 146.50	12-in., pipe sewer. 6-in., pipe, house drain. 10-in., pipe, C. B. drain. 7 catch-basins	Some rock. Contract.	1,674 01

**Dorchester.** — *Continued.*

*Sewers built between Feb. 1, 1896, and Fe'y. 1, 1897, by the City under Chapter 323 of the Acts of 1891, as amended by Chapter 408 of the Acts of 1892, or Special Acts referring thereto.*

Built in	Locality.	Length in feet.	Dimensions and Material.	Remarks.	Expenditure during the fiscal year 1896-97.
	Between Geneva av. and Ditson st. ....	29.02	18-in., pipe sewer.	Built in 1895. ....	\$60 18
		627.27	15-in., pipe sewer.		
		1,186.80	12-in., pipe sewer.		
		2,570.00	6-in., pipe, house-drain.		
		50.85	15-in., pipe, C. B. drain.		
		654.34	12-in., pipe, C. B. drain.		
		125.15	10-in., pipe, C. B. drain.		
		6 catch-basins.	6 catch-basins.		
		5 drop-inlets.	5 drop-inlets.		
		69.49	8 ft. × 8 ft., stone culvert.		
		61.80	8 ft. × 6 ft. 8 in., stone culvert.		
		52.42	4 ft. × 4 ft., stone culvert.		
		58.50	24-in., pipe culvert.		
		42.00	10-in., pipe, C. B. drain.		
		159.00	6-in., pipe, house-drain.		
		455.00	6-in., pipe, house drain.		
		122.97	12-in., pipe, C. B. drain.		
		20.74	10-in., pipe, C. B. drain.		
		4 catch-basins.	4 catch-basins.		
		20.00	1 drop-inlet.		
		24-in., pipe culvert			
				Contract. ....	375 26
				Contract. ....	1,101 93

Wolcott st. ....	301.00 234.95 152.15 372.60 52.18	6-in., pipe, house drain. 30-in., pipe, C. B. drain. 24-in., pipe, C. B. drain. 12-in., pipe, C. B. drain. 10-in., pipe, C. B. drain. 3 catch-basins. 2 drop-inlets. 24-in., pipe sewer. 18-in., pipe sewer. 27.00 498.16 438.00 59.80 112.20 112.90 141.80	Contract. Much rock. ....	2,870 89
Blue Hill av. ....	398.63 113.79 27.00 12-in., pipe sewer. 6-in., pipe, house drain. 18-in., pipe, C. B. drain. 15-in., pipe, C. B. drain. 12-in., pipe, C. B. drain. 10-in., pipe, C. B. drain. 14 catch-basins. 2 drop-inlets. 1.42 24-in., pipe culvert.	Contract. Very much rock. ....	11,503 26	
Blue Hill av. ....	1,092.50 116.60 243.00 596.20 164.70	12-in., pipe sewer. 18-in., pipe, C. B. drain. 15-in., pipe, C. B. drain. 12-in., pipe, C. B. drain. 10-in., pipe, C. B. drain. 6 catch-basins. 2 drop-inlets. 24-in., pipe culvert.	All rock. Contract. ....	8,319 85
Blue Hill av. ....	113.00 775.00 52.00 5.00	12-in., pipe sewer. 10-in., pipe, C. B. drain. 8-in., pipe, C. B. drain. .....	Contract. Considerable rock. ....	1,590 22
Blue Hill av. ....	.....	.....	Built in 1895. ....	192 34
Blue Hill av. ....	295.70 287.16 64.66	12-in., pipe sewer. 12-in., pipe, C. B. drain. 10-in., pipe, C. B. drain. 3 catch-basins. 2 drop-inlets.	Built in 1895. ....	315 24
Blue Hill av. ....	.....	.....	Contract. All rock. ....	2,467 47

**Dorchester.—Continued.**

*Sewers built between Feb. 1, 1896, and Feb. 1, 1897, by the City, under Chapter 323 of the Acts of 1891, as amended by Chapter 418 of the Acts of 1892, or Special Acts referring thereto.*

Built in	Locality.	Length in Feet.	Dimensions and Material.	Remarks.	Expenditure during the fiscal year 1896-97.
Blue Hill av. ....	Section Eight (8) .....	{ 1,327.91 283.46 58.68	{ 12-in., pipe sewer. 12-in., pipe, C.B. drain. 10-in., pipe, C.B. drain. 2 catch-basins. 2 drop-inlets.	{ Built in 1895..... Contract.....	\$104 63
Blue Hill av. ....	Section Nine (9) .....			{ Built in 1895..... Built in 1895..... Built in 1895.....	1,832 09
Blue Hill av. ....	Section Ten (10) .....				
Blue Hill av. ....	Section Eleven (11) .....				
Blue Hill av. ....	Section Twelve (12) .....				
Blue Hill av. ....	Section Thirteen (13) .....				
Blue Hill av. ....	Section Fourteen (14) .....				

Blue Hill av. . . . .	Section Fifteen (15) . . . . .	143.10 429.06 845.15 136.40 447.05 162.63	18-in., pipe, sewer. 15-in., pipe, sewer. 12-in., pipe, sewer. 15-in., pipe, C. B. drain. 12-in., pipe, C. B. drain. 10-in., pipe, C. B. drain. 6 catch-basins.	Contract. . . . . Contract. . . . .	All rock . . . . . .	6,756 81
Blue Hill av. . . . .	Section Sixteen (16) . . . . .	362.77 422.10	18-in., pipe, C. B. drain. 15-in., pipe, C. B. drain. 2 catch-basins, 4 drop-inlets.	Contract. . . . .	.	3,197 23
		136.35	30-in., pipe, culvert.			.
		39,822.97				.
	34 new catch-basins and drop-inlets built and 19 repaired . . . . .	39,822.97				.
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		39,822.97				

**Dorchester.**—Continued.*Surface Drains built between Feb. 1, 1896, and Feb. 1, 1897, by the City, either by Contract or Day Labor.*

Built in	Locality.	Length in Feet.	Dimensions and Material.	Remarks.
	Between			
Columbia st.....	New Seaver st. and Ilevins st.	137.00	24-in., pipe.	
New Seaver st.....	Blue Hill av. and Columbia st.,	712.70	24-in., pipe.	
Dorchester av. ....	Washington st. and Richmond st. ....	308.11	15-in., pipe.	
		245.13	12-in., pipe.	
		395.00	15-in., pipe.	
Edwin st. ....	Adams st. and Dorchester av. ....	98.30	12-in., pipe.	
		315.00	15-in., pipe.	
Templeton st. ....	Adams st. and existing sewer.	212.00	12-in., pipe.	
		871.00	4 ft. 6-in., circular brick.	
Private land.....	Lawrence av. and Stanwood st.	114.00	4 ft., circular brick.	
Richmond st. ....	Dorchester av. and Washington st. ....	221.56	12-in., pipe.	

*Culverts built between Feb. 1, 1896, and Feb. 1, 1897, by the City, either by Contract or Day Labor.*

Centre st. ....	About 230 ft. west of Adams st.	61.50	6 ft. × 5 ft. 6 in., stone.	
Charles st. ....	Diffison st. and Geneva av. ....	39.90	4 ft. × 6 ft. 6 in., concrete.	
Dix st. ....	Adams st. and Dorchester av. ....	23.00	6 ft. × 7 ft., stone.	
Morton st. ....	Selden st. and N. E. R.R. ....	18.10	6 ft. × 6 ft., stone.	
Parkman st. ....	Adams st. and Dorchester av. ....	45.00	18-in., pipe.	
		23.42	6 ft. × 7 ft. $\frac{2}{3}$ in., stone.	
		18.08	6 ft. × 6 ft., stone.	
				229.00

*Sewers built between Feb. 1, 1890, and Feb. 1, 1897, by Private Parties.*

Atherstone st. ....	Fuller st. and Bailey st. ....	295.32	10-in., pipe.
Barry-st. ext. ....	Clarkson st. and Barry st. ....	469.72	12-in., pipe.
Clarkson st. ....	Barrington st. and Barry st. ex. } Beeket st. ....	571.85	12-in., pipe.
Castle Rock st. ....	Codman st. and Van Winkle st. ....	339.56	12-in., pipe.
Devon st. ....	Grampian Way and Woodland av. ....	1,103.57	12-in., pipe.
Edison Green ....	Columbia st. and Cheever Newhall estate. ....	664.70	12-in., pipe.
Fairmount st. ....	Dorechester av. and Pond st. ....	1,284.12	12-in., pipe.
Gibson-st. ext. ....	Washington st and Milton av. Brook-st., intercepting sewer and Adams st. ....	202.46	12-in., pipe.
Greenbrier st. ....	Bloomfield st. and Park st. ....	816.00	12-in., pipe.
Half Moon st. ....	Magnolia st. and Hooper av. ....	135.35	12-in., pipe.
Holiday st. ....	Geneva av. and Topliff st. ....	323.09	12-in., pipe.
Hooper av. ....	Magnolia st. and Hartford st. ....	27.50	10-in., pipe.
Kerwin st. ....	Talbot av. and Bernard st. ....	499.38	12-in., pipe.
Learned st. ....	Norfolk st. and Torrey st. ....	575.50	12-in., pipe.
May st. ....	Greenwood st. and Glenway st. ....	599.50	12-in., pipe.
Montrie av. ....	Seaborn st. and Alston st. ....	305.95	12-in., pipe.
Phipps av. ....	Existing interceptor, 250 ft. easterly ....	328.32	12-in., pipe.
Ramsey st. ....	Hamlet st. and Dudley st. ....	249.75	12-in., pipe.
Russell park ....	Corona st. and Westville st. ....	318.20	12-in., pipe.
Shepton st. ....	Shawmut park and Denver st. ....	185.65	12-in., pipe.
Spencer st. ....	Wheatland av. and Talbot av. ....	656.50	12-in., pipe.
Stanley-st. ext. ....	Bellevue st. and Quincy st. ....	424.70	12-in., pipe.
		247.30	12-in., pipe.

**Dorchester. — Concluded.***Sewers built between Feb. 1, 1896, and Feb. 1, 1897, by Private Parties.*

LOCALITY.	Built in		Length in Foot.	Dimensions and Material.	Remarks.
	Between				
Thacher road.....	Stoughton st. and Cushing av.....	.....	775.88	12-in., pipe.	
Upham st.....	Hancock st. and Cushing av., Nevada st. and Milton av.....	.....	298.10	10-in., pipe.	
Wilmington av.....	Wilmington av. and Fair- mount st.....	.....	624.27	12-in., pipe.	
Milton av.....			276.10	12-in., pipe.	

*Surface Drains built between Feb. 1, 1896, and Feb. 1, 1897, by Private Parties.*

Greenbrier st. ....	Bloomfield st. and Park st. ....	237.17 564.83	15-in., pipe. 12-in., pipe.	
Ponemah st. ....	Blue Hill av. and Duke st. ....	80.70 25.20	10-in., pipe. 12-in., pipe.	
Ormond st. ....	Ponemah st. and Duke st. ....	70.45 51.10	10-in., pipe. 10-in., pipe.	
				1,029.45

## Brighton.

*Sewers built between Feb. 1, 1896, and Feb. 1, 1897, by the City, either by Contract or Day Labor.*

## STREET DEPARTMENT — SEWER DIVISION. 395

Built in	Locality.	Length in Feet.	Dimensions and Material.	Remarks.	Expenditure during the fiscal year 1896-97.
Allston square....	Commonwealth av. and Allston st. ....	222.60	12-in., pipe.		\$3,233 15
Cambridge st. ....	Cambridge terrace and Allston Heights. ....	725.57	10-in., pipe.		
Cambridge st. ....	Eleanor st. and Dustin st. ....	168.90	12-in., pipe. ....	161 cubic yards ledge. ....	814 93
Elina st. ....	North Beacon st. and Elmira st. ....	659.40	12-in., pipe. ....	206 cubic yards ledge. ....	1,624 35
Elmira st. ....	Markot st. and Murdock st. ....	970.20	12-in., pipe. ....		
Everett st. ....	Existing sewer and North Beacon st. ....	185.10	10-in., pipe.	Built in 1895. ....	2,372 12
Hobart st. ....	Brooks st. and Summit st. ....	{ 350.01	12-in., pipe.	Contract. ....	613 58
Hobart st. ....	Faneuil st. and Summit st. ....	817.56	12-in., pipe.	Contract. ....	
Holton st. ....	Everett st. and Athol st. ....	{ 261.23	15-in., pipe.	{ Contract. ....	4,082 77
Holmes av. ....	Harvard av. and Warren st. ....	475.00	12-in., pipe.	Contract. ....	
Mt. Vernon av. ....	Rockland st. and end of av... Sharhawk st. and Cambridge st. ....	650.42	18-in., pipe.	{ Contract. ....	876 70
Murdock st. ....		794.89	15-in., pipe.	{ Contract. ....	
North Harvard st. ....	Western av. and Charles river,	378.20	10-in., pipe.	{ Contract. ....	6,989 80
North Harvard st. ....	Coolidge road and Hopedale st. ....	420.90	12-in., pipe.	{ Contract. ....	2,119 37
Private land and Newton st. ....		177.18	12-in., pipe.	{ Contract. ....	348 79
		514.25	24-in., pipe.		
		1,035.05	18-in., pipe.		
		349.79	15-in., pipe.		
		700.03	12-in., pipe.		
		347.97	15-in., pipe.		
		152.25	12-in., pipe.		
		297.00	20-in., double thick pipe.		
		199.58	18-in., pipe.		
		525.42	15-in., pipe.		
		245.00	12-in., pipe.		

## Brighton.—Continued.

Built in	Locality. Between	Length in Feet.	Dimensions and Material.	Remarks.	Expenditure during the fiscal year 1896-97.
Private land, Parkman, Brooks and Bigelow sts....	Metropolitan main sewer and Webster st.....	124.82 757.21 870.51 395.74	2 ft. 4 in. × 3 ft. 6 in., brick. 20-in., pipe. 18-in., pipe. 12-in., pipe.	..... ..... ..... .....	\$13,801 80
Rockland st.....	Mt. Vernon st. and Mt. Vernon av.....	289.49	12-in., pipe.	Contract, ....	2,019 01
Rockland st.....	Mt. Vernon av and Jackson st.....	45.00	12-in., pipe.	Contract, ....	23 31
School st.....	Market st. and Portsmouth st., 18° west of Everett st. and Waverley st.....	574.96 682.10 • 280.53 279.38	12-in., pipe. 3 ft. × 3 ft. 2 in., brick. 2 ft. 6 in., eirenlar brick. 15-in., pipe.	..... ..... ..... .....	1,156 62
Western av.....	Oak sq. and Newton line.....	.....	.....	Built in 1895,.....	6,675 81
Washington st....	.....	.....	.....	.....	1,041 26
<i>Sewers built between Feb. 1, 1896, and Feb. 1, 1897, by the City, under Chapter 323 of the Acts of 1891, as amended by Chapter 418 of the Acts of 1892, or Special Acts referring thereto.</i>					
Brighton av., Sect. 1.....	.....	.....	.....	Built in 1895.	\$115 86
Brighton av., Sect. 2.....	.....	.....	.....	Built in 1895.	115 71
Chestnut Hill av., av.....	Beacon st. and Commonwealth	315.00 481.00	10-in., pipe sewer. 18-in., pipe, C. B. drain.	Outlet for Common-wealth av., Sects 1 and 2. Contract, ....	2,890 92

Commonwealth av., Sect. 1.....				303 27
Commonwealth av., Sect. 2, north side.....				
Commonwealth av., Sect. 2, south side.....				25 46
Commonwealth av., Sect. 3.....				
Commonwealth av., Sect. 4.....				
Commonwealth av., Sect. 5.....				
Commonwealth av., Sect. 6.....				
Commonwealth av., Sect. 7.....				
Commonwealth av., Sect. 8.....				
Commonwealth av., ' outlet in private land.....				
Harvard av.....				
				14 new catch-basins and drop-inlets built and 51 repaired.....
Chestnut Hill av. and Newton line.....	8,81	10-in., pipe sewer.		1,030 69
Chestnut Hill av. and Newton line.....	548.37	10-in., pipe sewer.	Contract .....	1,809 18
Chestnut Hill av. and Newton line.....	487.63 77.50 199.00	10-in., pipe sewer. 10-in., pipe, C. B. drain. 12-in., pipe, C. B. drain. 2 catch-basins, 2 drop-inlets.	Contract .....	152 81
Chestnut Hill av. and Newton line.....	278.50	10-in., pipe sewer.	Contract .....	2,583 91
Lake st. and Commonwealth av.....	130.00 60.00	2 ft. 6 in., circular brick. 18-in., pipe.	Contract .....	188 91
Commonwealth av. and Brook- line line.....			Built in 1895.....	139 96
				\$76,851 03
				1,609 89
				\$78,460 92

**Brighton.**—Concluded.*Surface Drains built between Feb. 1, 1896, and Feb. 1, 1897, by the City, either by Contract or Day Labor.*

LOCALITY.	Built in		Length in Feet.	Dimensions and Material.	Remarks.
	Between	Length across Commonwealth av.			
Allston sq. ....	Across Commonwealth av. outlet, for Allston sq., surface drain. ....	159.57	15-in., pipe.		
Hobart st. ....	Face drain. ....	388.59	18-in., pipe.		
Faneuil st. and Brooks st. ....	12-in., pipe.	396.85			
Holmes av. ....	10-in., pipe.	52.00			
Harvard av. and Warren st. ....	18-in., pipe.	250.00			
North Harvard st. ....	12-in., pipe.	600.00			
Western av. and Charles river. ....	24-in., pipe.	1,449.34			
North Harvard st. ....	18-in., pipe.	498.40			
Western av. and Spurtt st. ....	18-in., pipe.	161.95			

*Culverts built between Feb. 1, 1896, and Feb. 1, 1897, by the City, either by Contract or Day Labor.*

Holmes av. ....	Harvard av. and Warren st. ....	55.85 50.05 64.32	5 ft. × 6 ft., concrete enl- vert ..... 5 ft. 4 in. × 3 ft. 4 in., concrete culvert. 18-in., pipe culvert.....
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*Sewers built between Feb. 1, 1896, and Feb. 1, 1897, by Private Parties.*

Commonwealth av.	St. Paul st. and 235 ft. easterly,	235.12	12-in., pipe.	Rebuilt by Metropolitan Water Board.
Cypress road.....	Etna st. and George st. ....	232.47	12-in., pipe.	
Griggs pl. ....	Webster av. and Allston st. ....	413.32	12-in., pipe.	
Stratmore road.....	Beacon st. and Sutherland and Orkney road	188.14	12-in., pipe.	
Orkney road.....	{ Griggs pl. and Webster st. ....	591.69	10-in., pipe.	
Webster av. ....		126.10	12-in., pipe.	

*Surface Drains built between Feb. 1, 1896, and Feb. 1, 1897, by Private Parties.*

Orkney road .....	Strathmore road and Suther- land road.....	281.00	10-in., pipe.
.	.	.	.

**Work done for and paid by Paving Division, including the following class of work. Building and repairing culverts, surface drains, catch-basins and sewers.**

Commonwealth avenue . . . . .	\$226 92
Congress and L streets . . . . .	7,608 17
McLellan street . . . . .	772 90
Talbot avenue . . . . .	107 34
Street Improvements, Ward 1 . . . . .	1,653 97
"    "    "    2 . . . . .	869 67
"    "    "    3, old . . . . .	615 24
"    "    "    3, new . . . . .	556 29
"    "    "    4, new . . . . .	2,821 71
"    "    "    5, new . . . . .	678 53
"    "    "    6 . . . . .	289 47
"    "    "    7 . . . . .	879 77
"    "    "    8 . . . . .	382 05
"    "    "    9 . . . . .	912 21
"    "    "    10 . . . . .	1,024 82
"    "    "    11 . . . . .	752 37
"    "    "    12, new . . . . .	408 90
"    "    "    13, old . . . . .	241 60
"    "    "    14 . . . . .	797 14
"    "    Wards 14 and 15 . . . . .	5,310 32
"    "    Ward 16, new . . . . .	1,716 59
"    "    "    17 . . . . .	1,609 32
"    "    "    18 . . . . .	920 49
"    "    "    19 . . . . .	1,500 20
"    "    "    20, old . . . . .	301 51
"    "    "    20, new . . . . .	1,202 14
"    "    "    21 . . . . .	1,262 36
"    "    "    22 . . . . .	811 96
"    "    "    23 . . . . .	2,341 56
"    "    "    24, old . . . . .	1,824 38
"    "    "    24, new . . . . .	7,904 94
"    "    "    25 . . . . .	500 00
	<hr/>
	\$48,804 84

### RECAPITULATION.

#### NEW SEWERS.

South Boston . . . . .	\$36,270 44
East Boston . . . . .	28,322 79
Charlestown . . . . .	6,772 40
Brighton . . . . .	76,851 03
West Roxbury . . . . .	57,259 53
Dorchester . . . . .	153,260 69
Roxbury . . . . .	152,272 20
City Proper . . . . .	72,178 01
	<hr/>
	\$583,187 09

*Carried forward . . . . .* \$583,187 09

*Brought forward . . . . . \$583,187 09*

## CATCH-BASINS.

South Boston . . . . .	\$4,611 05
East Boston . . . . .	2,438 36
Charlestown . . . . .	3,345 62
Brighton . . . . .	1,609 89
West Roxbury . . . . .	1,434 74
Dorchester . . . . .	4,612 00
Roxbury . . . . .	6,724 08
City Proper . . . . .	6,085 48
	—————
	30,861 22
Improved Sewerage Maintenance . . . . .	103,439 38
Pumping Station, Chapman avenue . . . . .	14,176 17
Stony Brook, Maintenance . . . . .	16,900 16
Stony Brook Construction . . . . .	98,209 21
Miscellaneous . . . . .	228,027 13
	—————
	\$1,074,800 36

**Summary of Sewer Construction for the Twelve Months  
ending Jan. 31, 1897.**

DISTRICT.	Built by the City by Con- tract or Day Labor.	Built by Private Parties.	Total length built during the 12 months ending Jan. 31, 1897.
	Feet.	Feet.	Feet.
City .....	6,145.24	5,536.68	11,681.92
East Boston.....	2,997.41	.....	2,997.41
Charlestown.....	1,029.88	.....	1,029.88
South Boston .....	2,897.55	979.05	3,876.60
Roxbury .....	21,083.43	5,787.58	26,871.01
West Roxbury .....	15,936.22	9,825.98	25,762.20
Dorchester .....	43,452.77	13,627.79	57,080.56
Brighton .....	22,465.75	2,068.84	24,534.59
 Total.....	116,008.25	37,825.92	153,734.17

122 catch-basins, built by contract.

50 drop inlets, built by contract.

168 catch-basins, built by day labor.

381 catch-basins, repaired by day labor.

6 drop inlets, built by day labor.

16 manholes built,

262 manholes repaired.

557,311 linear feet sewers flushed.

423.55 cubic yards material removed from sewers.

6,041 catch-basins cleaned.

20,327 $\frac{1}{4}$  cubic yards material removed from catch-basins.

474 feet culverts built.

There are now 444.47 miles of sewers in charge of the Sewer Division.

The amount expended by this division during the twelve months ending Jan. 31, 1897, including the amount spent under special appropriations, was \$1,074,800.36.

#### Schedule of Sewers built to date in the City of Boston.

DISTRICTS.	Total length built during 12 months ending Jan. 31, 1897.	Length rebuilt during 12 months ending Jan. 31, 1897.	Additional length for 12 months ending Jan. 31, 1897.	
	Feet.	Feet.	Feet.	Miles.
City.....	11,681.92	5,997.00	5,684.92	1.08
East Boston .....	2,997.41	.....	2,997.41	.57
Charlestown.....	1,029.88	107.60	922.28	.17
South Boston.....	3,876.60	2,771.28	1,105.32	.21
Roxbury.....	26,871.01	3,434.73	23,436.28	4.44
West Roxbury.....	25,762.20	.....	25,762.20	4.88
Dorchester.....	57,080.56	.....	57,080.56	10.81
Brighton .....	24,534.49	235.12	24,299.47	4.60
Total.....	153,834.17	12,545.73	141,288.44	26.76
Length built previous to Jan. 31, 1896.....				393.52
Total.....				420.28
Length of Intercepting Sewer.....				24.11
Total.....				444.39

## Rainfall.—Albany Street Yard.

DATE.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	January.
1.....	.54	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
2.....	.....	.....	.53	.....	.....	.....	.60	.....	.....	.....	.....	.....
3.....	3.64	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
4.....	.....	.21	.....	.....	.....	.....	.....	.40	.....	.....	.....	.....
5.....	.....	.....	.....	.....	.....	.22	.....	.....	.....	.....	.....	.....
6.....	.....	.....	.....	.....	.....	.....	.....	2.28	.62	.92	.....	.....
7.....	1.67	.30	.....	.....	.....	.67	.83	.....	.....	.....	.....	.77
8.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
9.....	.....	.....	.....	.....	.91	.....	.....	.....	.....	.....	.....	1.02
10.....	.27	.....	.....	.....	.40	.....	.....	2.81	.....	.....	.....	.....
11.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.20	.....	.....
12.....	.....	.38	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
13.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
14.....	.....	.....	.....	.....	1.15	.18	.....	.49	.....	.37	.....	.....
15.....	.....	.....	.....	.....	.....	.29	.....	.....	.41	.....	.....	.....
16.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.30
17.....	.....	.90	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
18.....	.....	.....	.21	.....	.....	.....	.....	.....	.09	.....	.....	.28
19.....	.36	.....	.42	.40	.....	.....	.....	.53	.....	.....	.....	.....
20.....	.....	.43	.....	.....	.....	.....	.....	.60	.....	.....	.....	.....
21.....	.....	.....	.....	.11	.....	.18	.....	.....	.....	.40	.....	.67
22.....	.....	.....	.37	.....	.....	.....	.....	.....	.....	.....	.....	.....
23.....	.....	.....	.....	.....	.....	.06	.....	.....	.....	.....	.....	.17
24.....	.....	.....	.....	.....	.....	.....	.22	.....	.93	.06	.....	.....
25.....	.....	.....	.....	.....	.....	.41	.....	.....	.....	.....	.....	.....
26.....	.....	.....	.....	.13	.....	.....	.....	.....	.....	.....	.....	.28
27.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
28.....	.....	.....	.....	.....	.12	.....	.....	.....	.....	.....	.....	.....
29.....	.....	.....	.....	.45	.....	.....	.....	.....	.....	.....	.....	.....
30.....	.....	1.05	.....	.....	.....	.....	.....	.....	.....	.70	.....	.....
31.....	.....	.....	.....	.33	.....	.....	.....	.....	.....	.....	.....	.....
Totals.....	2.84	6.91	1.53	1.42	2.58	2.01	1.65	7.11	2.05	3.70	1.49	1.72

NOTE.—Total inches for twelve months from Feb. 1, 1896, to Jan. 31, 1897, inclusive, 35.01.

## Sewer Department—Pumping-Station.

*Record of Pumping done from Feb. 1, 1896, to Jan. 31, 1897.*

**Pumping Station.**

Record of sludge received and removed for twelve months ending Jan. 31, 1897.

	Received.	Removed.
February . . . . .	412 cubic yards.	170 cubic yards.
March . . . . .	374 " "	360 " "
April . . . . .	416 " "	425 " "
May . . . . .	683 " "	595 " "
June . . . . .	545 " "	680 " "
July . . . . .	721 " "	510 " "
August . . . . .	829 " "	850 " "
September . . . . .	417 " "	510 " "
October . . . . .	653 " "	590 " "
November . . . . .	635 " "	365 " "
December . . . . .	297 " "	.... " "
January . . . . .	449 " "	.... " "
 Total . . . . .	 6,431	 5,055

Sent down the harbor 360 cubic yards of filth hoist screenings from September 2 to December 9.

**PROPERTY IN CHARGE OF THE SEWER DIVISION.**

Sewer yard, with buildings, at 678 Albany street, South End.

Sewer yard, with building, on North Grove street, West End.

Sewer yard, on Gibson street, Dorchester, with buildings. This is Gibson School-fund land. The buildings were erected by the Sewer Department.

Small lot of land on Stony brook, corner of Centre street, Roxbury.

Gatehouse on Stony brook, Pynchon street, Roxbury, built in 1889.

Sewer yard, with buildings, on Rutherford avenue, Charlestown.

Sewer yard, with buildings, corner Paris and Marion streets, East Boston.

Sewer yard, with buildings on East Chester park, near Albany street, South End.

Sewer yard, with buildings, on Western avenue, Brighton.

Sewer yard, with buildings, on Revere street, West End.

Sewer yard, with buildings, H and Ninth streets, South Boston.

Sewer yard, with buildings, Childs and South streets, West Roxbury.

**Summary of Sewer Construction for Five Years previous to  
Feb. 1, 1897.**

	1892.	1893.	1894.	1895.	1896.
	Feet.	Feet.	Feet.	Feet.	Feet.
Built by City by contract or day labor,	71,318.46	66,400.85	90,802.77	139,200.09	116,008.25
Built by pri- vate parties,	22,566.73	22,837.09	24,877.05	36,287.35	37,825.92
Total number of feet built,	93,885.19	89,237.94	115,679.82	175,487.44	153,834.17

**DETAILS OF COST AND CONSTRUCTION**

are given of the following sewers which have been constructed during the year at a cost exceeding two thousand dollars (\$2,000) each :

**Adams, between King and Lonsdale Streets.**

Labor	.	.	.	.	.	.	.	\$1,440	76
Bricks	.	.	.	.	.	.	.	658	75
Cement	.	.	.	.	.	.	.	249	60
Sand and gravel	.	.	.	.	.	.	.	138	30
Iron castings	.	.	.	.	.	.	.	27	09
Teaming	.	.	.	.	.	.	.	149	00
Drain pipe	.	.	.	.	.	.	.	60	07
Water	.	.	.	.	.	.	.	59	62
Miscellaneous	.	.	.	.	.	.	.	66	74
								\$2,849	93

*Size and Length of Sewer.*

116.23 feet 30 in. × 36 in., brick.

**Alford Street Connection with Metropolitan Sewer.**

Labor	.	.	.	.	.	.	.	\$1,700	52
Bricks	.	.	.	.	.	.	.	50	76
Cement	.	.	.	.	.	.	.	39	60
Sand and gravel	.	.	.	.	.	.	.	18	23
Iron castings	.	.	.	.	.	.	.	80	40
Teaming	.	.	.	.	.	.	.	223	00
Lumber	.	.	.	.	.	.	.	96	70
Drain pipe	.	.	.	.	.	.	.	94	79
Water	.	.	.	.	.	.	.	22	50
Miscellaneous	.	.	.	.	.	.	.	57	63
								\$2,384	13

*Size and Length of Sewer.*

225 feet 15 in. pipe.

1 sump manhole.

1 tide-gate manhole.

**Allston Square, between Commonwealth Avenue and Allston Street.**

Labor	.	.	.	.	.	.	\$2,541	73
Bricks	.	.	.	.	.	.	109	92
Cement	.	.	.	.	.	.	29	90
Iron castings	.	.	.	.	.	.	47	44
Explosives	.	.	.	.	.	.	33	00
Teaming	.	.	.	.	.	.	49	00
Drain pipe	.	.	.	.	.	.	268	91
Water	.	.	.	.	.	.	94	81
Miscellaneous	.	.	.	.	.	.	58	44
							\$3,233	15

*Size and Length of Sewer.*

725.57 feet 10 in., pipe.

222.60 feet 12 in., pipe.

**Audubon Road.**

Labor	.	.	.	.	.	.	\$3,831	82
Bricks	.	.	.	.	.	.	139	20
Cement	.	.	.	.	.	.	46	85
Iron castings	.	.	.	.	.	.	47	80
Teaming	.	.	.	.	.	.	401	50
Lumber	.	.	.	.	.	.	141	57
Drain pipe	.	.	.	.	.	.	300	76
Water	.	.	.	.	.	.	89	70
Miscellaneous	.	.	.	.	.	.	8	10
							\$5,007	30

*Size and Length of Sewer.*

897.06 feet 12 in., pipe.

**B and Seventh Streets Overflow.**

Labor.	.	.	.	.	.	.	\$10,164	60
Bricks	.	.	.	.	.	.	1,161	00
Cement	.	.	.	.	.	.	668	25
Teaming	.	.	.	.	.	.	423	50
Lumber	.	.	.	.	.	.	1,432	90

*Carried forward* . . . . . \$13,850 25

<i>Brought forward</i>	.	.	.	.	.	\$13,850	25
Pipe	.	.	.	.	.	12	96
Hire of machinery	.	.	.	.	.	745	70
Carpentry	.	.	.	.	.	498	75
W. S. Rendle, contractor	.	.	.	.	.	762	77
Advertising and printing	.	.	.	.	.	61	08
Miscellaneous	.	.	.	.	.	426	08
Gravel and filling	.	.	.	.	.	2,117	99
						\$18,475	58

*Size and Length of Sewer.*

480 feet 6 × 6 ft., circular brick.

**Beach Street, between Harrison Avenue and Washington Street.**

Labor	.	.	.	.	.	\$3,065	93
Bricks	.	.	.	.	.	545	35
Cement	.	.	.	.	.	143	00
Sand and gravel	.	.	.	.	.	83	60
Iron castings	.	.	.	.	.	6	00
Teaming	.	.	.	.	.	611	00
Lumber	.	.	.	.	.	7	65
Drain pipe	.	.	.	.	.	8	67
Hire of machinery	.	.	.	.	.	242	01
Carpentry	.	.	.	.	.	30	07
Water	.	.	.	.	.	39	69
Miscellaneous	.	.	.	.	.	21	46
						\$4,804	43

*Size and Length of Sewer.*

396.90 feet, 2ft. 6 in. × 3 feet, brick.

**Beech Street, between Anawan and Newburgh Streets.**

Labor	.	.	.	.	.	\$1,700	69
Bricks	.	.	.	.	.	124	73
Cement	.	.	.	.	.	60	95
Sand and gravel	.	.	.	.	.	10	80
Iron castings	.	.	.	.	.	67	65
Teaming	.	.	.	.	.	155	00
Lumber	.	.	.	.	.	16	64
Drain pipe	.	.	.	.	.	638	23
Water	.	.	.	.	.	164	64
Miscellaneous	.	.	.	.	.	49	35
						\$2,988	68

*Size and Length of Sewer.*

200.45 feet 15 in., pipe.  
1,445.99 feet 12 in., pipe.

**Blue Hill Avenue, Sect. 1.**

Labor . . . . .	. . . . .	\$1,019 58
Cement . . . . .	. . . . .	223 15
Iron castings . . . . .	. . . . .	251 68
Teaming . . . . .	. . . . .	49 00
Drain Pipe . . . . .	. . . . .	2,371 15
Stone . . . . .	. . . . .	8 27
D. E. Lynch, contractor . . . . .	. . . . .	7,580 43
		<hr/>
		\$11,503 26

*Size and Length of Sewer.*

398.63 feet 24 in., pipe.  
113.79 feet 18 in., pipe.  
27 feet 15 in., pipe.  
498.16 feet 12 in., pipe.  
438 feet 6 in., pipe, house drain.  
59.80 feet 18 in., pipe catch-basin drain.  
112.20 feet 15 in., pipe catch-basin drain.  
212.90 feet 12 in., pipe catch-basin drain.  
141.80 feet 10 in., pipe catch-basin drain.  
14 catch-basins.  
2 drop inlets.  
1.42 feet 24 in., pipe culvert.

**Blue Hill Avenue Sect. 2 and part Sect. 3**

Labor . . . . .	. . . . .	\$902 99
Cement . . . . .	. . . . .	135 95
Iron castings . . . . .	. . . . .	164 67
Teamiug . . . . .	. . . . .	26 50
Pipe . . . . .	. . . . .	884 10
J. P. O'Connell, contractor . . . . .	. . . . .	6,147 16
Advertising . . . . .	. . . . .	41 33
Miscellaneous . . . . .	. . . . .	17 15
		<hr/>
		\$8,319 85

*Size and Length of Sewer.*

1,092.50 feet 12 in., pipe.  
116.60 feet 18 in., pipe catch-basin drain.  
243 feet 15 in., pipe catch-basin drain.  
154.70 feet 10 in., pipe catch-basin drain.  
596.20 feet 12 in., pipe catch-basin drain.  
113 feet, pipe, culvert.  
6 catch-basins.  
2 drop inlets.

**Blue Hill Avenue Sect. 7.**

Labor . . . . .	\$331 27
Cement . . . . .	40 25
Iron castings . . . . .	82 35
Teaming . . . . .	10 00
Drain pipe . . . . .	168 81
Advertising and printing . . . . .	90 50
Stone . . . . .	9 50
J. P. O'Connell, contractor . . . . .	1,734 79
	<hr/>
	\$2,467 47

*Size and Length of Sewer.*

295.70 feet 12 in., pipe.  
 287.16 feet 12 in., pipe catch-basin drain.  
 64.66 feet 10 in., pipe catch-basin drain.  
 3 catch-basins.  
 2 drop inlets.

**Blue Hill Avenue, Sect. 10.**

Labor . . . . .	\$14 65
D. O'Connell, contractor . . . . .	3,985 35
Miscellaneous . . . . .	359 27
	<hr/>
	\$4,359 27

Built in 1895.

**Blue Hill Avenue, Sect. 13.**

Labor . . . . .	\$408 35
Cement . . . . .	80 50
Iron castings . . . . .	123 95
Teaming . . . . .	15 00
Drain pipes . . . . .	1,116 60
Advertising and printing . . . . .	111 29
T. H. Connelly, contractor . . . . .	3,347 19
	<hr/>
	\$5,202 88

*Size and Length of Sewer.*

1,934.77 feet 12., pipe sewer.  
 40.52 feet 20 in., pipe catch-basin drain.  
 400.80 feet 18 in., pipe catch-basin drain.  
 457.90 feet 15 in., pipe catch-basin drain.  
 266.42 feet 12 in., pipe catch-basin drain.  
 167.65 feet 10 in., pipe catch-basin drain.  
 8 catch-basins.  
 5 drop inlets.

**Blue Hill Avenue, Sect. 14.**

Labor . . . . .	\$308 05
Cement . . . . .	46 00
Iron castings . . . . .	81 88
Teaming . . . . .	2 25
Drain pipe . . . . .	546 82
Advertising and printing . . . . .	67 88
J. Dolan, contractor . . . . .	2,331 25
	<hr/>
	\$3,384 13

*Size and Length of Sewer.*

944.88 feet 12 in., pipe sewer.  
 78.55 feet 15 in., pipe catch-basin drain.  
 313.20 feet 18 in., pipe catch-basin drain.  
 25.43 feet 12 in., pipe catch-basin drain.  
 69.21 feet 10 in., pipe catch-basin drain.  
 2 catch-basins.  
 2 drop inlets.

**Blue Hill Avenue, Sect. 15.**

Labor . . . . .	\$547 92
Cement . . . . .	97 75
Iron castings . . . . .	110 48
Teaming . . . . .	5 00
Drain pipe . . . . .	671 65
J. Dolan, contractor . . . . .	5,242 41
Advertising and printing . . . . .	81 60
	<hr/>
	\$6,756 81

*Size and Length of Sewer.*

143.10 feet 18 in., pipe.  
 429.06 feet 15 in., pipe.  
 845.15 feet 12 in., pipe.  
 136.40 feet 15 in., pipe catch-basin drain.  
 447.05 feet 12 in., pipe catch-basin drain.  
 162.63 feet 10 in., pipe catch-basin drain.  
 6 catch-basins.  
 2 drop inlets.

**Blue Hill Avenue, Sect. 16.**

Labor . . . . .	\$212 20
Cement . . . . .	100 25
Iron castings . . . . .	25 77
Teaming . . . . .	5 00
	<hr/>
Carried forward . . . . .	\$343 22

<i>Brought forward</i>	.	.	.	.	.	\$343 22
Drain pipe	.	.	.	.	.	787 02
Advertising and printing	.	.	.	.	.	130 37
J. P. O'Connell, contractor	.	.	.	.	.	1,936 62
						<hr/>
						\$3,197 23

*Size and Length of Sewer.*

362.77 feet 18 in., pipe catch-basin drain.  
 422.10 feet 15 in., pipe catch-basin drain.  
 136.35 feet 30 in., pipe culvert.  
 2 catch-basins.  
 4 drop inlets.

**Border Street, near Decatur, connection with Metropolitan Sewer.**

Labor	.	.	.	.	.	.	\$2,242 47
Gravel	.	.	.	.	.	.	7 45
Iron castings	.	.	.	.	.	.	25 90
Teaming	.	.	.	.	.	.	81 00
Drain pipe	.	.	.	.	.	.	11 51
Miscellaneous	.	.	.	.	.	.	7 09
							<hr/>
							\$2,375 42

*Size and Length of Sewer.*

26 feet 15 in., pipe.  
 1 sump manhole.  
 1 regulator manhole.  
 1 overflow and tide-gate manhole.

**Boylston Street, between Brookline Avenue and Back Bay Fens.**

Labor	.	.	.	.	.	.	\$1,279 42
Bricks	.	.	.	.	.	.	1,337 61
Cement	.	.	.	.	.	.	1,340 75
Iron castings	.	.	.	.	.	.	318 99
Teaming	.	.	.	.	.	.	116 50
Lumber	.	.	.	.	.	.	18 33
Drain pipe	.	.	.	.	.	.	2,095 44
Advertising and printing	.	.	.	.	.	.	90 01
Stone	.	.	.	.	.	.	182 00
H. P. Nawn, contractor	.	.	.	.	.	.	12,973 64
J. H. O'Donnell, contractor	.	.	.	.	.	.	1,711 33
							<hr/>
							\$21,464 02

*Size and Length of Sewer.*

17.10 feet 30 in., catch-basin drain.  
 618.30 feet 24 in., pipe catch-basin drain.  
 789.90 feet 18 in., pipe catch-basin drain.  
 263.50 feet 15 in., pipe catch-basin drain.  
 219.60 feet 12 in., pipe catch-basin drain.  
 515.10 feet 10 in., pipe catch-basin drain.  
 796.78 feet 2 ft. 8 in. × 3 ft. 6 in., brick.  
 19.67 feet 16 in., iron pipe.  
 15.85 feet tide gate manhole and connection.  
 13 catch-basins.  
 11 drop inlets.

**Central Street, between Atlantic Avenue and India Street.**

Labor	.	.	.	.	.	.	.	\$5,413	54	
Cement	.	.	.	.	.	.	.	52	80	
Sand and gravel	.	.	.	.	.	.	.	38	30	
Iron castings	.	.	.	.	.	.	.	15	00	
Teaming	.	.	.	.	.	.	.	817	50	
Lumber	.	.	.	.	.	.	.	403	13	
Drain pipe	.	.	.	.	.	.	.	178	45	
Hire of machinery	.	.	.	.	.	.	.	150	50	
Carpentry	.	.	.	.	.	.	.	129	59	
Miscellaneous	.	.	.	.	.	.	.	297	56	
									\$7,496	37

*Size and Length of Sewer.*

218 feet 5 ft. × 5 ft., 3½ in., brick.

**Central Street, between Boylston Street and Boylston Terrace.**

Labor	.	.	.	.	.	.	.	\$2,210	11	
Bricks	.	.	.	.	.	.	.	32	30	
Cement	.	.	.	.	.	.	.	15	90	
Sand	.	.	.	.	.	.	.	4	25	
Iron castings	.	.	.	.	.	.	.	16	95	
Explosives	.	.	.	.	.	.	.	73	49	
Teaming	.	.	.	.	.	.	.	322	75	
Lumber	.	.	.	.	.	.	.	33	50	
Drain pipe	.	.	.	.	.	.	.	114	53	
Rock excavation	.	.	.	.	.	.	.	550	50	
Water	.	.	.	.	.	.	.	34	99	
Miscellaneous	.	.	.	.	.	.	.	183	64	
									\$3,592	91

*Size and Length of Sewer.*

349.90 feet 12 in., pipe.

**Chapman Avenue and Private Land.**

Labor	.	.	.	.	.	.	.	\$13,958	05	
Bricks	.	.	.	.	.	.	.	143	40	
Cement	.	.	.	.	.	.	.	136	70	
Sand and Gravel.	.	.	.	.	.	.	.	41	55	
Iron castings	.	.	.	.	.	.	.	50	55	
Explosives	.	.	.	.	.	.	.	124	70	
Teaming	.	.	.	.	.	.	.	563	00	
Lumber	.	.	.	.	.	.	.	864	90	
Drain pipe	.	.	.	.	.	.	.	6,935	62	
Hire of machinery	.	.	.	.	.	.	.	386	33	
Miscellaneous	.	.	.	.	.	.	.	562	81	
									\$23,767	61

*Size and Length of Sewer.*

33.40 feet 24 in., brick.

674 feet 24 in., pipe.

909.84 feet 24 in., pipe.

44 feet 18 in., pipe.

**Chelsea and Vine Streets, Metropolitan Sewer Connection.**

Labor	.	.	.	.	.	.	.	\$1,991	79	
Bricks	.	.	.	.	.	.	.	80	60	
Cement	.	.	.	.	.	.	.	46	20	
Sand	.	.	.	.	.	.	.	8	00	
Iron castings	.	.	.	.	.	.	.	6	20	
Teaming	.	.	.	.	.	.	.	24	00	
Lumber	.	.	.	.	.	.	.	31	40	
Drain pipe	.	.	.	.	.	.	.	21	93	
Carpentry	.	.	.	.	.	.	.	93	66	
Miscellaneous	.	.	.	.	.	.	.	12	83	
									\$2,316	61

*Size and Length of Sewer.*

120.76 feet 4 ft. x 4 ft. 3-in., brick.

24.02 feet 18-in., pipe.

24.40 feet 12-in., pipe.

**Chestnut Hill Avenue, between Beacon Street and Commonwealth Avenue.**

Labor	.	.	.	.	.	.	.	\$283	61	
Cement	.	.	.	.	.	.	.	64	90	
<i>Carried forward.</i>	.	.	.	.	.	.	.		\$348	51

<i>Brought forward</i>	.	.	.	.	.	\$348 51
Iron castings	.	.	.	.	.	61 26
Teaming	.	.	.	.	.	6 00
Drain pipe	.	.	.	.	.	37 83
F. A. Snow, contractor	.	.	.	.	.	2,432 15
Miscellaneous	.	.	.	.	.	5 17
						<hr/>
						\$2,890 92
						<hr/>

*Size and Length of Sewer.*

315 feet 10 in., pipe.  
481 feet 18 in., catch-basin drain.

**Columbus Avenue, Sect. 1.**

Labor	.	.	.	.	.	\$582 72
Bricks	.	.	.	.	.	230 82
Cement	.	.	.	.	.	75 40
Sand	.	.	.	.	.	9 65
Iron castings	.	.	.	.	.	11 93
Teaming	.	.	.	.	.	53 00
Drain pipe	.	.	.	.	.	185 00
Quimby & Ferguson, contractors	.	.	.	.	.	1,645 67
Miscellaneous	.	.	.	.	.	22 36
						<hr/>
						\$2,816 55
						<hr/>

*Size and Length of Sewer.*

4 feet 10-in., pipe catch-basin drain.  
200 feet 15 in., pipe catch-basin drain.  
240 feet 10 in., pipe catch-basin drain.  
2 drop inlets.

**Columbus Avenue, Sect. 2.**

Labor	.	.	.	.	.	\$591 57
Bricks	.	.	.	.	.	948 88
Cement	.	.	.	.	.	457 30
Iron castings	.	.	.	.	.	159 08
Teaming	.	.	.	.	.	77 00
Drain pipe	.	.	.	.	.	1,914 83
Quimby & Ferguson, contractors	.	.	.	.	.	3,675 97
Miscellaneous	.	.	.	.	.	7 61
						<hr/>
						\$7,832 24
						<hr/>

*Size and Length of Sewer.*

229.35 feet 15-in., pipe catch-basin drain.  
 27.50 feet 12-in., pipe catch-basin drain.  
 256.85 feet 10-in., pipe catch-basin drain.  
 43.65 feet 18-in., pipe sewer.  
 .80 feet 2 ft. 6 in. × 3-ft., brick.  
 10 catch-basins.  
 3 drop inlets.

**Columbus Avenue, Sect. 3.**

Labor	.	.	.	.	.	.	.	\$1,735	65
Bricks	.	.	.	.	.	.	.	1,426	99
Cement	.	.	.	.	.	.	.	1,103	40
Iron castings	.	.	.	.	.	.	.	532	37
Teaming	.	.	.	.	.	.	.	43	00
Drain pipe	.	.	.	.	.	.	.	2,113	50
Advertising and printing	.	.	.	.	.	.	.	55	75
J. P. O'Connell, contractor	.	.	.	.	.	.	.	9,808	49
Miscellaneous	.	.	.	.	.	.	.	76	04
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								\$16,895	19

*Size and Length of Sewer.*

10.80 feet 3 ft., circular brick.  
 278.50 feet 3 ft. 6 in. × 3 ft. 8½ in., brick.  
 267.75 feet 2 ft. 6 in. × 3 ft.. brick.  
 11.20 feet 2 ft. 6 in. × 4 ft. 4 in., brick.  
 173.27 feet 24 in., pipe catch-basin drain.  
 172.87 feet 15 in., pipe catch-basin drain.  
 308.73 feet 12 in., pipe catch-basin drain.  
 339.50 feet 10 in., pipe catch-basin drain.  
 15.86 feet 8 in., pipe house drain.  
 61.75 feet 6 in., pipe house drain.  
 853.50 feet 18 in., pipe sewer.  
 173.23 feet 18 in., pipe sewer.  
 493.40 feet 15 in., pipe sewer.  
 1,338.49 feet 12 in., pipe sewer.  
 25.06 feet 12 in., iron pipe.  
 13 catch-basins.  
 3 drop inlets.  
 708 feet concreting invert in old conduit.

**Columbus Avenue, Sect. 8.**

Labor	.	.	.	.	.	.	.	\$489	11
Bricks	.	.	.	.	.	.	.	687	55
Cement	.	.	.	.	.	.	.	189	75
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<i>Carried forward.</i>	.	.	.	.	.	.	.	\$1,366	41

<i>Brought forward</i>	.	.	.	.	.	\$1,366	41
Iron castings	.	.	.	.	.	136	34
Drain pipe	.	.	.	.	.	302	90
Printing and advertising	.	.	.	.	.	104	66
Thomas O'Leary, contractor	.	.	.	.	.	1,835	66
Miscellaneous	.	.	.	.	.	4	45
						\$3,750	42

*Size and Length of Sewer.*

239 feet 3 ft. 6 in. × 4 ft. 10 in., brick.  
 316 feet 2 ft. 4 in. × 3 ft. 6 in., brick.  
 1,085 feet 12 in., pipe.  
 5 feet 10 in., pipe catch-basin drain.  
 39 feet 6 in., house drain.  
 1 catch-basin.

**Columbus Avenue, Sect. 9.**

Labor	.	.	.	.	.	\$107	64
Joseph P. O'Connell, contractor	.	.	.	.	.	3,392	25
Miscellaneous	.	.	.	.	.	154	67
						\$3,654	56

*Size and Length of Sewer.*

6 feet 10 in., pipe catch-basin drain.  
 22 feet 8 in., pipe house drain.

**Commonwealth Avenue, Sect. 5, between Chestnut Hill Avenue and Newton line.**

Labor	.	.	.	.	.	\$178	72
Cement	.	.	.	.	.	40	25
Iron castings	.	.	.	.	.	57	09
Drain pipe	.	.	.	.	.	211	07
F. A. Snow, contractor	.	.	.	.	.	2,048	40
Advertising	.	.	.	.	.	48	38
						\$2,583	91

*Size and Length of Sewer.*

487.63 feet 10 in., pipe.  
 77.50 feet 10 in., pipe catch-basin drain.  
 199 feet 12 in., pipe catch-basin drain.  
 2 catch-basins.  
 2 drop inlets.

**Congress Street, between Atlantic Avenue and Sea Wall.**

Labor . . . . .	\$4,743	53
Bricks . . . . .	466	66
Cement . . . . .	314	60
Sand and gravel . . . . .	236	69
Iron castings . . . . .	120	38
Teaming . . . . .	846	25
Lumber . . . . .	320	10
Pipe . . . . .	59	68
Hire of machinery . . . . .	278	66
Carpentry . . . . .	75	54
Water . . . . .	41	43
Miscellaneous . . . . .	162	33
	<b>\$7,665</b>	<b>85</b>

*Size and Length of Sewer.*

409.13 feet 2 ft. 6 in. × 3 ft., brick.

8.67 feet in tide gate manhole.

**D Street, between W. First and W. Second Streets.**

Labor . . . . .	\$2,418	05
Bricks . . . . .	471	22
Cement . . . . .	119	95
Sand and gravel . . . . .	197	93
Iron castings . . . . .	13	25
Teaming . . . . .	235	50
Lumber . . . . .	129	07
Drain pipe . . . . .	38	67
Hire of machinery . . . . .	148	00
Carpentry . . . . .	349	50
Miscellaneous . . . . .	81	11
	<b>\$4,202</b>	<b>25</b>

*Size and Length of Sewer.*

62.73 feet 2 ft. × 3 ft., brick.

33.63 feet 4 ft. × 3 ft. 6 in., brick.

244.42 feet 4 ft. × 4 ft. 3 in., brick.

**D Street and Dorchester Avenue. Dorr-Street Outlet, so called.**

Labor . . . . .	\$3,476	55
Bricks . . . . .	105	68
Cement . . . . .	82	19
Sand and gravel . . . . .	68	49
<i>Carried forward</i> . . . . .	<b>\$3,732</b>	<b>91</b>

<i>Brought forward</i>	.	.	.	.	.	\$3,732 91
Iron castings	.	.	.	.	.	11 25
Teaming	.	.	.	.	.	383 50
Lumber	.	.	.	.	.	996 46
Drain pipe	.	.	.	.	.	8 23
Hire of machinery	.	.	.	.	.	48 00
Pile driving	.	.	.	.	.	262 50
Carpentry	.	.	.	.	.	256 30
Miscellaneous	.	.	.	.	.	100 20
						<hr/>
						\$5,799 35

*Size and Length of Sewer.*

31.43 feet 2 ft. 6 in., circular brick.

76.64 feet 3 ft. 3 in., circular brick.

591.84 feet 3 ft. × 4 ft., wood.

**Dorchester Avenue, between Washington and Richmond Streets.**

Labor	.	.	.	.	.	\$2,887 48
Bricks	.	.	.	.	.	66 95
Cement	.	.	.	.	.	27 65
Sand and gravel	.	.	.	.	.	77 94
Iron castings	.	.	.	.	.	36 20
Explosives	.	.	.	.	.	102 89
Teaming	.	.	.	.	.	125 50
Drain pipe	.	.	.	.	.	405 36
Paving	.	.	.	.	.	111 00
Hire of machinery	.	.	.	.	.	340 00
Water	.	.	.	.	.	64 04
Miscellaneous	.	.	.	.	.	164 30
						<hr/>
						\$4,409 31

*Size and Length of Sewer.*

640.41 feet 12-in., pipe.

**Dorchester-brook Sewer, between Norfolk Avenue and George Street.**

Labor	.	.	.	.	.	\$11,128 28
Bricks	.	.	.	.	.	1,136 22
Cement	.	.	.	.	.	630 30
Sand and gravel	.	.	.	.	.	984 75
Iron castings	.	.	.	.	.	27 30
Teaming	.	.	.	.	.	1,126 00
						<hr/>

*Carried forward* . . . . . \$15,032 85

<i>Brought forward</i>	.	.	.	.	.	\$15,032	85
Lumber	.	.	.	.	.	795	31
Drain pipe	.	.	.	.	.	152	24
Carpentry	.	.	.	.	.	412	82
Hire of machinery	.	.	.	.	.	399	50
Miscellaneous	.	.	.	.	.	678	97
						\$17,471	69

*Size and Length of Sewer.*

541 feet 8 ft. 6 in. × 8 ft., brick.

**Dundee Street, between Dalton Street and Massachusetts Avenue.**

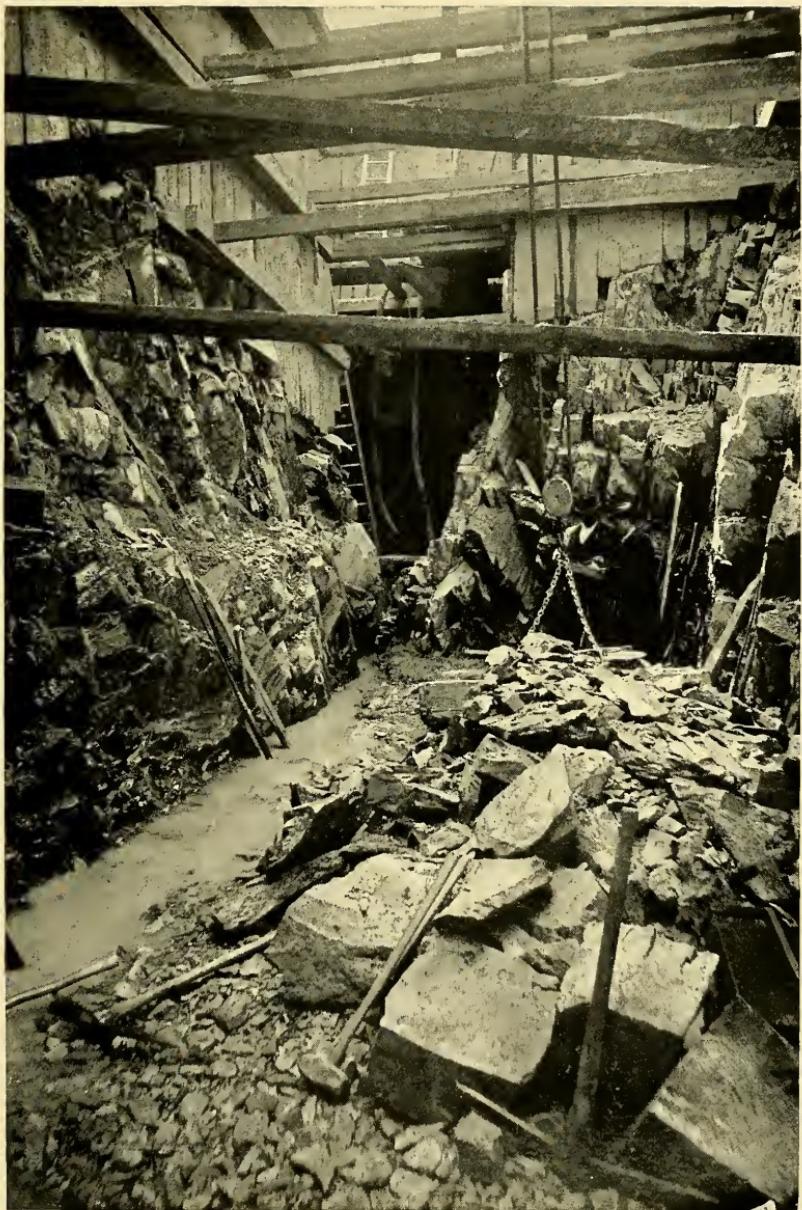
Labor	.	.	.	.	.	\$1,845	21
Bricks	.	.	.	.	.	60	13
Cement	.	.	.	.	.	24	20
Sand and gravel	.	.	.	.	.	41	30
Iron castings	.	.	.	.	.	30	70
Teaming	.	.	.	.	.	242	50
Lumber	.	.	.	.	.	110	68
Drain pipe	.	.	.	.	.	229	46
Water	.	.	.	.	.	68	34
Miscellaneous	.	.	.	.	.	31	34
						\$2,183	86

*Size and Length of Sewer.*

683.65 feet 12-in., pipe.

**Endicott and Thacher Streets.**

Labor	.	.	.	.	.	\$5,988	51
Bricks	.	.	.	.	.	843	14
Cement	.	.	.	.	.	520	30
Sand and gravel	.	.	.	.	.	363	95
Iron castings	.	.	.	.	.	15	15
Teaming	.	.	.	.	.	1,330	00
Lumber	.	.	.	.	.	489	51
Drain pipe	.	.	.	.	.	143	91
Hire of machinery	.	.	.	.	.	845	00
Carpentry	.	.	.	.	.	175	96
Paving	.	.	.	.	.	544	73
Water	.	.	.	.	.	67	40
Miscellaneous	.	.	.	.	.	366	27
						\$11,693	83



**ROCK EXCAVATION FOR WHEEL PITS, CHAPMAN AVENUE  
PUMPING STATION.**



*Size and Length of Sewer.*

498.80 feet 2 ft. 8 in. × 4 ft., brick.

175.24 feet 2 ft. 6 in. × 3 ft., brick.

**Etna Street, between North Beacon and Elmira Streets.**

Labor . . . . .	\$1,617 03
Bricks . . . . .	124 00
Cement . . . . .	40 25
Sand . . . . .	1 80
Iron castings . . . . .	48 96
Teaming . . . . .	68 50
Drain pipe . . . . .	357 39
Water . . . . .	97 02
Miscellaneous . . . . .	17 17
	<hr/>
	\$2,372 12

*Size and Length of Sewer.*

970.20 feet 12-in., pipe.

**Falmouth and Norway Streets.**

Labor . . . . .	\$5,795 36
Bricks . . . . .	371 15
Cement . . . . .	244 20
Sand and gravel . . . . .	207 37
Iron castings . . . . .	4 20
Teaming . . . . .	918 50
Lumber . . . . .	597 26
Drain pipe . . . . .	129 94
Hire of machinery . . . . .	183 00
Carpentry . . . . .	104 78
Pile driving . . . . .	440 30
Water . . . . .	37 18
Miscellaneous . . . . .	219 11
	<hr/>
	\$9,252 35

*Size and Length of Sewer.*

238.97 feet 2 ft. 6 in. × 3 ft. 3 in., brick.

127.84 feet 2 ft. × 2 ft. 7 in., brick.

**Forest Avenue Main, Sect. 1 (Willowwood Street and Ballou Avenue.)**

Labor . . . . .	\$600 48
Cement . . . . .	51 75
Iron castings . . . . .	82 10
	<hr/>
Carried forward . . . . .	\$734 33

<i>Brought forward</i>	.	.	.	.	.	\$734 33
Teaming	.	.	.	.	.	12 50
Drain pipe	.	.	.	.	.	954 34
Printing and advertising	.	.	.	.	.	72 24
T. H. Connolly, contractor	.	.	.	.	.	2,906 00
						<hr/>
						\$4,679 41

*Size and Length of Sewer.*

865.49 feet 18-in., pipe.

494 feet 15-in., pipe.

**Geneva Avenue and Park Street**

Labor	.	.	.	.	.	\$152 13
Cement	.	.	.	.	.	285 15
Iron castings	.	.	.	.	.	68 52
Team	.	.	.	.	.	2 50
Drain pipe	.	.	.	.	.	309 18
Advertising and printing	.	.	.	.	.	84 25
Stone	.	.	.	.	.	18 00
J. P. O'Connell, contractor	.	.	.	.	.	752 40
D. F. O'Connell, contractor	.	.	.	.	.	2,925 35
						<hr/>
						\$4,597 48

*Size and Length of Sewer.*

591.48 feet 12-in., pipe.

244.60 feet 15-in., pipe.

621 feet 6-in., pipe.

3 catch-basins.

**Gerard Street, between Massachusetts Avenue and Norfolk Avenue.**

Labor	.	.	.	.	.	\$1,421 58
Bricks	.	.	.	.	.	377 42
Cement	.	.	.	.	.	103 50
Sand	.	.	.	.	.	73 80
Iron castings	.	.	.	.	.	28 23
Teaming	.	.	.	.	.	298 50
Lumber	.	.	.	.	.	63 45
Drain pipe	.	.	.	.	.	210 01
Hire of machinery	.	.	.	.	.	407 50
Water	.	.	.	.	.	170 90
Miscellaneous	.	.	.	.	.	93 36
						<hr/>
						\$3,248 25

*Size and Length of Sewer.*

106.59 feet 15-in., pipe.

**Hobart Street, between Brooks and Faneuil Streets.**

Labor . . . . .	\$634 45
Bricks . . . . .	44 05
Cement . . . . .	42 45
Iron castings . . . . .	60 04
Catch-basin stone . . . . .	44 00
Teaming . . . . .	17 00
Drain pipe . . . . .	875 90
T. J. Young & Co., contractors . . . . .	2,362 24
Miscellaneous . . . . .	2 64
	<hr/>
	\$4,082 77

*Size and Length of Sewer.*

350.01 feet 12-in., pipe.

817.56 feet 12-in., pipe.

261.23 feet 15-in., pipe.

**Holmes Avenue.**

Labor . . . . .	\$4,111 34
Brick . . . . .	248 50
Cement . . . . .	355 50
Sand and gravel . . . . .	217 20
Iron castings . . . . .	63 14
Teaming . . . . .	223 50
Lumber . . . . .	28 35
Drain pipe . . . . .	1,457 38
Carpentry . . . . .	69 52
Water . . . . .	182 35
Miscellaneous . . . . .	33 02
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	\$6,989 80

*Size and Length of Sewer.*

378.20 feet 10-in., pipe.

794.89 feet 15-in., pipe.

650.42 feet 18-in., pipe.

600 feet 12-in., pipe, catch-basin drain.

250 feet 18-in., pipe, catch-basin drain.

64.32 feet 18-in., pipe, culvert.

50.05 feet 5 ft. 4 in. × 3 ft. 4-in., concrete culvert.

55.85 feet 5 ft. × 6 ft., concrete culvert.

**Huntington Avenue, Section 2.**

Labor	.	.	.	.	.	.	.	\$3,721	02
Bricks	.	.	.	.	.	.	.	732	19
Cement	.	.	.	.	.	.	.	307	75
Sand	.	.	.	.	.	.	.	140	23
Iron castings	.	.	.	.	.	.	.	296	30
Team.	.	.	.	.	.	.	.	576	00
Lumber	.	.	.	.	.	.	.	70	12
Drain pipe	.	.	.	.	.	.	.	181	26
H. P. Nawn, contractor	.	.	.	.	.	.	.	2,974	72
Hire of machinery	.	.	.	.	.	.	.	188	00
Carpentry	.	.	.	.	.	.	.	245	74
Miscellaneous	.	.	.	.	.	.	.	268	94
								\$9,702	27

*Size and Length of Sewer.*

261 feet 8-in., pipe house drain.

**Hyde Park Avenue, between Walk Hill Street and 1,040 feet Southerly.**

Labor	.	.	.	.	.	.	.	\$1,415	25
Bricks	.	.	.	.	.	.	.	74	98
Cement	.	.	.	.	.	.	.	23	00
Iron castings	.	.	.	.	.	.	.	49	80
Teaming	.	.	.	.	.	.	.	223	50
Lumber	.	.	.	.	.	.	.	69	90
Drain pipe	.	.	.	.	.	.	.	348	00
Water	.	.	.	.	.	.	.	104	09
Miscellaneous	.	.	.	.	.	.	.	36	96
								\$2,345	48

*Size and Length of Sewer.*

1,040.94 feet, 12-in., pipe.

**Jamaicaway, between Castleton and Perkins Streets.**

Labor	.	.	.	.	.	.	.	\$1,005	53
Bricks	.	.	.	.	.	.	.	98	00
Cement	.	.	.	.	.	.	.	42	00
Iron castings	.	.	.	.	.	.	.	50	38
Teaming	.	.	.	.	.	.	.	664	00
Lumber	.	.	.	.	.	.	.	140	60
Drain pipe	.	.	.	.	.	.	.	410	32
Water	.	.	.	.	.	.	.	112	45
Miscellaneous	.	.	.	.	.	.	.	204	98
								\$2,728	26

*Size and Length of Sewer.*

282.27 feet 12-in., pipe.

**Kearsarge Avenue, between Warren Street and Winthrop Street.**

Labor	.	.	.	.	.	.	.	\$1,530	71
Bricks	.	.	.	.	.	.	.	45	58
Cement	.	.	.	.	.	.	.	30	75
Sand	.	.	.	.	.	.	.	8	10
Iron castings	.	.	.	.	.	.	.	25	80
Explosives	.	.	.	.	.	.	.	138	59
Teaming	.	.	.	.	.	.	.	661	00
Lumber	.	.	.	.	.	.	.	7	74
Drain pipe	.	.	.	.	.	.	.	152	41
Paving	.	.	.	.	.	.	.	12	25
Water	.	.	.	.	.	.	.	39	99
Miscellaneous	.	.	.	.	.	.	.	188	98
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								\$2,841	90

*Size and Length of Sewer.*

402.40 feet 12-in., pipe.

**Lauriat Avenue.**

Labor	.	.	.	.	.	.	.	\$1,094	12
Cement	.	.	.	.	.	.	.	827	10
Teaming	.	.	.	.	.	.	.	59	00
Lumber	.	.	.	.	.	.	.	35	96
Drain pipe	.	.	.	.	.	.	.	586	48
H. P. Nawn, contractor	.	.	.	.	.	.	.	9,558	56
Miscellaneous	.	.	.	.	.	.	.	32	70
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								\$12,193	92

*Size and Length of Sewer.*

678.12 feet 15-in., pipe.

1,841.14 feet 12-in., pipe.

125.15 feet 10-in., pipe.

29.02 feet 18-in., pipe.

2,570 feet 6-in., pipe house drain.

69.49 feet 8 ft. × 8 ft., stone culvert.

61.80 feet 8 ft. × 6 ft. 8-in., stone culvert.

52.42 feet 4 ft. × 4 ft., stone culvert.

58.50 feet 24-in., pipe culvert.

6 catch-basins.

5 drop inlets.

**Leyden Street and Private Land.**

Labor	.	.	.	.	.	.	.	\$10,187	31
Bricks	.	.	.	.	.	.	.	793	90
Cement	.	.	.	.	.	.	.	485	00
Sand and gravel	.	.	.	.	.	.	.	380	87
Iron castings	.	.	.	.	.	.	.	110	59
Teaming	.	.	.	.	.	.	.	826	00
Lumber	.	.	.	.	.	.	.	263	82
Pipe	.	.	.	.	.	.	.	1,962	41
Hire of machinery	.	.	.	.	.	.	.	798	00
Water	.	.	.	.	.	.	.	230	47
Pile driving	.	.	.	.	.	.	.	310	40
Miscellaneous	.	.	.	.	.	.	.	743	80
								\$17,092	57

*Size and Length of Sewer.*

200.40 feet 15-in., pipe.  
 472.30 feet 18-in., pipe.  
 518.68 feet 24-in., pipe.  
 502.80 feet 12-in., pipe.  
 373.58 feet 30-in. × 36-in., brick.

**Liverpool Street, between Decatur and Central Square.**

Labor	.	.	.	.	.	.	.	\$1,249	36
Bricks	.	.	.	.	.	.	.	19	13
Cement	.	.	.	.	.	.	.	32	45
Sand and gravel	.	.	.	.	.	.	.	26	46
Iron castings	.	.	.	.	.	.	.	20	72
Teaming	.	.	.	.	.	.	.	103	50
Lumber	.	.	.	.	.	.	.	31	16
Drain pipe	.	.	.	.	.	.	.	392	00
J. Ettridge, contractor	.	.	.	.	.	.	.	345	92
Miscellaneous	.	.	.	.	.	.	.	21	18
								\$2,241	88

*Size and Length of Sewer.*

610 feet 18-in., pipe.

**Lyons Street and Franklin Field.**

Labor	.	.	.	.	.	.	.	\$2,555	81
Bricks	.	.	.	.	.	.	.	190	53
Cement	.	.	.	.	.	.	.	206	30
Sand	.	.	.	.	.	.	.	26	25
Iron castings	.	.	.	.	.	.	.	253	91
Explosives	.	.	.	.	.	.	.	32	38
Team	.	.	.	.	.	.	.	286	00
Drain pipe	.	.	.	.	.	.	.	6,921	38
Miscellaneous	.	.	.	.	.	.	.	668	43
								\$11,140	99

*Size and Length of Sewers.*

1,109.36 feet 30-in., pipe.  
 38.63 feet 30-in., iron pipe.  
 36.73 feet 30-in., brick.

**Mt. Vernon Avenue, between Rockland Street and End.**

Labor . . . . .	. . . . .	\$139 10
Cement . . . . .	. . . . .	11 50
Drain pipe . . . . .	. . . . .	146 51
T. J. Young & Co., contractors . . . . .	. . . . .	1,822 26
		<hr/>
		\$2,119 37

*Size and Length of Sewer.*

420.90 feet 12-in., pipe.

**Munroe Street, between Walnut Avenue and existing Sewer.**

Labor . . . . .	. . . . .	\$2,014 97
Bricks . . . . .	. . . . .	36 50
Cement . . . . .	. . . . .	16 50
Iron castings . . . . .	. . . . .	25 10
Teaming . . . . .	. . . . .	279 25
Explosives . . . . .	. . . . .	100 53
Drain pipe . . . . .	. . . . .	85 80
Water . . . . .	. . . . .	50 14
Miscellaneous . . . . .	. . . . .	168 37
		<hr/>
		\$2,777 16

*Size and Length of Sewer.*

243.96 feet 12-in., pipe.

**Newton Street and Private Land.**

Labor . . . . .	. . . . .	\$3,102 97
Bricks . . . . .	. . . . .	67 00
Cement . . . . .	. . . . .	18 20
Sand . . . . .	. . . . .	9 00
Teaming . . . . .	. . . . .	103 00
Drain pipe . . . . .	. . . . .	694 50
Miscellaneous . . . . .	. . . . .	14 73
		<hr/>
		\$4,009 40

*Size and Length of Sewer.*

525.42 feet 15-in., pipe.  
 245 feet 12-in., pipe.  
 199.58 feet 18-in., pipe.  
 297 feet 20-in., double thick pipe.

**Northampton Street, between Albany and Fellows  
Streets.**

Labor . . . . .	. . . . .	\$6,596 74
Bricks . . . . .	. . . . .	386 12
Cement . . . . .	. . . . .	212 35
Sand and gravel . . . . .	. . . . .	122 11
Iron casting . . . . .	. . . . .	38 82
Teaming . . . . .	. . . . .	816 50
Lumber . . . . .	. . . . .	712 72
Drain pipe . . . . .	. . . . .	97 62
Carpentry . . . . .	. . . . .	103 76
Paving . . . . .	. . . . .	155 30
Water . . . . .	. . . . .	29 00
Miscellaneous . . . . .	. . . . .	196 36
		<hr/>
		\$9,467 40

*Size and Length of Sewer.*

278.70 feet 2 ft. 6 in. × 3 ft., brick.

772 feet 20-in. pipe.

**North Harvard Street.**

Labor . . . . .	. . . . .	\$5,355 31
Bricks . . . . .	. . . . .	201 24
Cement . . . . .	. . . . .	135 30
Sand . . . . .	. . . . .	35 10
Iron castings . . . . .	. . . . .	144 28
Teaming . . . . .	. . . . .	316 50
Lumber . . . . .	. . . . .	164 74
Drain pipe . . . . .	. . . . .	5,273 76
Water . . . . .	. . . . .	259 93
Hire of engine . . . . .	. . . . .	182 20
Miscellaneous . . . . .	. . . . .	95 81
		<hr/>
		\$12,164 17

*Size and Length of Sewer.*

700.03 feet 12-in., pipe.

349.79 feet 15-in. pipe.

1,035.05 feet 18-in., pipe.

514.25 feet 24-in., pipe.

498.40 feet 18-in., pipe catch-basin drain.

1449.34 feet 24-in., pipe catch-basin drain.

**Old Heath and Parker Streets.**

Labor . . . . .	. . . . .	\$4,339 49
Bricks . . . . .	. . . . .	1,086 11
Cement . . . . .	. . . . .	392 50
		<hr/>
<i>Carried forward</i>	. . . . .	\$5,818 10

<i>Brought forward</i>	.	.	.	.	.	\$5,818	10
Sand and gravel	.	.	.	.	.	104	75
Iron castings	.	.	.	.	.	46	65
Teaming	.	.	.	.	.	1,190	50
Lumber	.	.	.	.	.	124	62
Drain pipe	.	.	.	.	.	379	51
Carpentry	.	.	.	.	.	153	63
Water	.	.	.	.	.	90	00
Miscellaneous	.	.	.	.	.	43	15
						\$7,950	91

*Size and Length of Sewer.*

729.15 feet 3 ft. × 3 ft. 2½ in., brick.

180.48 feet 24-in., pipe.

**Parkway, between Pond Street and Dorchester Avenue.**

Labor	.	.	.	.	.	\$1,192	08
Bricks	.	.	.	.	.	34	47
Cement	.	.	.	.	.	22	20
Sand and gravel	.	.	.	.	.	120	04
Explosives	.	.	.	.	.	32	39
Teaming	.	.	.	.	.	330	00
Drain pipe	.	.	.	.	.	350	44
Water	.	.	.	.	.	295	76
Miscellaneous	.	.	.	.	.	60	34
						\$2,437	72

*Size and Length of Sewer.*

430.97 feet 12-in., pipe.

**Pierce Farm Sewer, West Roxbury.**

Labor	.	.	.	.	.	\$13,678	05
Bricks	.	.	.	.	.	512	60
Cement	.	.	.	.	.	230	20
Sand and gravel	.	.	.	.	.	1,095	55
Iron castings	.	.	.	.	.	300	21
Teaming	.	.	.	.	.	15	56
Lumber	.	.	.	.	.	472	44
Drain pipe	.	.	.	.	.	3,240	31
Rubble stone	.	.	.	.	.	181	25
Water	.	.	.	.	.	666	89
Hire of machinery	.	.	.	.	.	194	00
Miscellaneous	.	.	.	.	.	635	84
						\$22,763	34

*Size and Length of Sewer.*

5,190.96 feet 15-in., pipe.  
862.96 feet 12-in., pipe.

**Private Land, between Lawrence Avenue and Stanwood Street.**

Labor . . . . .	. . . . .	\$5,362 58
Bricks . . . . .	. . . . .	1,241 10
Cement . . . . .	. . . . .	552 10
Sand and gravel . . . . .	. . . . .	308 85
Iron castings . . . . .	. . . . .	26 25
Explosives . . . . .	. . . . .	15 43
Teaming . . . . .	. . . . .	608 00
Lumber . . . . .	. . . . .	108 18
Pipe . . . . .	. . . . .	661 75
Carpentry . . . . .	. . . . .	294 27
Masonry . . . . .	. . . . .	948 00
Miscellaneous . . . . .	. . . . .	43 98
		<hr/>
		\$10,170 49

*Size and Length of Sewer.*

1,300 feet 15-in., pipe.  
48 feet 12-in., pipe.

**Private Land, Mozart, Selwyn and Arundel Streets.**

Labor . . . . .	. . . . .	\$4,259 06
Bricks . . . . .	. . . . .	116 08
Cement . . . . .	. . . . .	28 46
Iron castings . . . . .	. . . . .	36 35
Explosives . . . . .	. . . . .	15 21
Teaming . . . . .	. . . . .	315 00
Lumber . . . . .	. . . . .	43 99
Drain pipe . . . . .	. . . . .	741 86
Miscellaneous . . . . .	. . . . .	132 98
		<hr/>
		\$5,688 99

*Size and Length of Sewer.*

967 feet 18-in., pipe.

**Private Land, Parkman, Brooks and Bigelow Streets.**

Labor . . . . .	. . . . .	\$7,227 73
Bricks . . . . .	. . . . .	958 50
Cement . . . . .	. . . . .	287 80

*Carried forward . . . . .*      . . . . .      \$8,474 03

<i>Brought forward</i>	.	.	.	.	.	\$8,474 03
Sand and gravel	.	.	.	.	.	104 40
Iron castings	.	.	.	.	.	129 05
Teaming	.	.	.	.	.	442 50
Lumber	.	.	.	.	.	133 63
Drain pipe	.	.	.	.	.	2,785 70
Carpentry	.	.	.	.	.	15 06
Water	.	.	.	.	.	325 25
Hire of machinery	.	.	.	.	.	668 50
Miscellaneous	.	.	.	.	.	723 68
						<hr/>
						\$13,801 80

*Size and Length of Sewer.*

124.82 feet 2 ft. 4-in. × 3 ft. 6-in., brick.  
 395.74 feet 12-in., pipe.  
 870.50 feet 18-in., pipe.  
 757.21 feet 20-in., pipe.

**Porter Street at Bremen Street. Connection with Metropolitan Sewer.**

Labor	.	.	.	.	.	\$2,235 07
Bricks	.	.	.	.	.	179 35
Cement	.	.	.	.	.	158 40
Sand and gravel	.	.	.	.	.	30 78
Regulator castings	.	.	.	.	.	231 08
Teaming	.	.	.	.	.	203 50
Lumber	.	.	.	.	.	249 31
Pipe	.	.	.	.	.	23 08
Hire of engine	.	.	.	.	.	24 00
Miscellaneous	.	.	.	.	.	233 29
						<hr/>
						\$3,567 86

*Size and Length of Sewer.*

6 feet 24-in., pipe.  
 8 feet 20-in., iron pipe.  
 1 sump manhole.  
 1 regulator manhole.

**Rockland Street, between Mt. Vernon Street and Mt. Vernon Avenue.**

Labor	.	.	.	.	.	\$127 44
Iron castings	.	.	.	.	.	17 98
Teaming	.	.	.	.	.	3 00
T. J. Young & Co., contractors	.	.	.	.	.	1,750 73
Water	.	.	.	.	.	119 86
						<hr/>
						\$2,019 01

*Size and Length of Sewer.*

289.49 feet 12-in., pipe.

**Ruggles Street, between Parker Street and Back Bay Fens.**

Labor	.	.	.	.	.	.	.	.	\$781	62	
Bricks	.	.	.	.	.	.	.	.	102	00	
Cement	.	.	.	.	.	.	.	.	157	75	
Iron castings	.	.	.	.	.	.	.	.	51	90	
Drain pipe	.	.	.	.	.	.	.	.	66	42	
Advertising and printing	.	.	.	.	.	.	.	.	85	76	
D. E. Lynch, contractor	.	.	.	.	.	.	.	.	3,971	59	
Miscellaneous	.	.	.	.	.	.	.	.	1	89	
										\$5,218	93

*Size and Length of Sewer.*

756 feet 2 ft. 6 in. × 3 ft., brick.

**Shawmut Park, Edwin and Templeton Streets.**

Labor	.	.	.	.	.	.	.	.	\$3,310	60	
Bricks	.	.	.	.	.	.	.	.	184	06	
Cement	.	.	.	.	.	.	.	.	83	95	
Sand and gravel	.	.	.	.	.	.	.	.	57	15	
Iron castings	.	.	.	.	.	.	.	.	101	25	
Teaming	.	.	.	.	.	.	.	.	96	00	
Lumber	.	.	.	.	.	.	.	.	32	01	
Drain pipe	.	.	.	.	.	.	.	.	1,738	05	
Water	.	.	.	.	.	.	.	.	390	46	
Miscellaneous	.	.	.	.	.	.	.	.	76	08	
										\$6,069	61

*Size and Length of Sewer.*

392.89 feet 18-in., pipe.

432.05 feet 15-in., pipe.

2,603.87 feet 12-in., pipe.

**Shawmut Avenue, Roxbury Street and Guild Row.**

Labor	.	.	.	.	.	.	.	.	\$9,475	50
Bricks	.	.	.	.	.	.	.	.	1,112	34
Cement	.	.	.	.	.	.	.	.	386	00
Sand and gravel	.	.	.	.	.	.	.	.	222	00
Iron castings	.	.	.	.	.	.	.	.	16	60
Teaming	.	.	.	.	.	.	.	.	1,629	25
Lumber	.	.	.	.	.	.	.	.	284	77
Drain pipe	.	.	.	.	.	.	.	.	13	43

*Carried forward* . . . . . \$13,139 89

<i>Brought forward</i>	.	.	.	.	.	\$13,139	89
Hire of machinery	.	.	.	.	.	283	64
Carpentry	.	.	.	.	.	373	69
Paving	.	.	.	.	.	141	67
Miscellaneous.	.	.	.	.	.	258	73
						\$14,197	62

*Size and Length of Sewer.*

823 feet 3 ft. 6 in. × 5 ft. 6 in., brick.

16 feet 2 ft. 2 in. × 3 ft. 3 in., brick.

**Tyler Street, between Oak and Curve, and Kneeland and Harvard Streets.**

Labor	.	.	.	.	.	\$12,004	79
Bricks	.	.	.	.	.	1,223	67
Cement	.	.	.	.	.	501	50
Sand and gravel	.	.	.	.	.	698	47
Iron castings	.	.	.	.	.	54	71
Teaming	.	.	.	.	.	3,304	00
Lumber	.	.	.	.	.	1,397	17
Drain pipe	.	.	.	.	.	242	16
Hire of machinery	.	.	.	.	.	838	99
Carpentry	.	.	.	.	.	48	91
Piles	.	.	.	.	.	151	25
Water	.	.	.	.	.	74	62
Miscellaneous	.	.	.	.	.	712	68
						\$21,252	92

*Size and Length of Sewer.*

325.95 feet 2 ft. × 3 ft., brick.

288.97 feet 2 ft. × 3 ft., brick.

19.80 feet 20-in., iron pipe.

**Walk Hill and Bourne Streets, between Patten Street and Hyde Park Avenue.**

Labor	.	.	.	.	.	\$3,609	96
Bricks	.	.	.	.	.	95	00
Cement	.	.	.	.	.	28	75
Iron castings	.	.	.	.	.	32	60
Explosives	.	.	.	.	.	46	59
Teaming	.	.	.	.	.	142	50
Lumber	.	.	.	.	.	135	94
Drain pipe	.	.	.	.	.	408	29
Miscellaneous	.	.	.	.	.	101	10
						\$4,600	73

*Size and Length of Sewer.*

578 feet 15-in., pipe.

**Washington Street, between Lower Mills and Fairmount Street.**

Labor . . . . .	\$3,025	50
Bricks . . . . .	170	63
Cement . . . . .	55	20
Sand and gravel . . . . .	26	22
Iron castings . . . . .	64	69
Teaming . . . . .	167	00
Drain pipe . . . . .	623	39
Water . . . . .	172	20
Miscellaneous . . . . .	97	00
Explosives . . . . .	16	92
	\$4,418	75

*Size and Length of Sewer.*

442.49 feet 15-in., pipe.

1,279.59 feet 12-in., pipe.

**Wensley Street, between New Heath and Bickford Avenue.**

Labor . . . . .	\$2,004	66
Bricks . . . . .	63	03
Cement . . . . .	22	47
Sand and gravel . . . . .	15	00
Iron castings . . . . .	31	05
Teaming . . . . .	241	25
Lumber . . . . .	46	15
Drain pipe . . . . .	227	54
Water . . . . .	69	99
Miscellaneous . . . . .	22	23
	\$2,743	37

*Size and Length of Sewer.*

434.92 feet 12-in., pipe.

264.98 feet 10-in., pipe.

**Western Avenue, between 180 feet West of Everett and Waverley Streets.**

Labor . . . . .	\$4,465	56
Bricks . . . . .	803	15
Cement . . . . .	359	85
<i>Carried forward.</i> . . . . .	\$5,628	56

<i>Brought forward</i>	.	.	.	.	.	\$5,628	56
Sand	.	.	.	.	.	19	80
Teaming	.	.	.	.	.	291	00
Lumber	.	.	.	.	.	128	42
Drain pipe	.	.	.	.	.	54	16
Hire of machinery	.	.	.	.	.	172	00
Carpentry	.	.	.	.	.	85	97
Water	.	.	.	.	.	124	20
Miscellaneous	.	.	.	.	.	171	70
						\$6,675	81

*Size and Length of Sewer.*

279.38 feet 15-in., pipe.

682.10 feet 3 ft. × 3 ft. 2 in., brick.

280.53 feet 2 ft. 6 in., circular brick.

**West Roxbury Low-level Sewer.**

(In private land between Amory street and 400 feet south of Boylston.)

Labor	.	.	.	.	.	\$1,391	28
Bricks	.	.	.	.	.	212	02
Cement	.	.	.	.	.	116	90
Sand and gravel	.	.	.	.	.	98	60
Teaming	.	.	.	.	.	143	00
Lumber	.	.	.	.	.	224	77
N. Y., N. H. & H. R.R. Co.	.	.	.	.	.	2,292	73
Carpentry	.	.	.	.	.	38	46
Water	.	.	.	.	.	15	90
Miscellaneous	.	.	.	.	.	52	09
						\$4,585	75

*Size and Length of Sewer.*

159 feet 2 ft. × 3 ft. 6 in., brick.

**West Second Street, between E and D Streets.**

Labor	.	.	.	.	.	\$1,261	20
Bricks	.	.	.	.	.	204	93
Cement	.	.	.	.	.	118	80
Sand and gravel	.	.	.	.	.	149	33
Teaming	.	.	.	.	.	208	00
Lumber	.	.	.	.	.	47	76
Paving	.	.	.	.	.	105	25
Hire of machinery	.	.	.	.	.	164	00
Carpentry	.	.	.	.	.	102	51
Water	.	.	.	.	.	23	03
Miscellaneous	.	.	.	.	.	21	86
						\$2,406	67

*Size and Length of Sewer.*

230.38 feet 2 ft. x 3 ft., brick.

**Wolcott Street.**

Labor . . . . .	\$149	48
Cement . . . . .	69	00
Iron castings . . . . .	61	96
Teaming . . . . .	2	50
Drain pipe . . . . .	1,258	50
Advertising and printing . . . . .	82	62
C. B. Stone . . . . .	38	50
J. P. O'Connell, contractor . . . . .	1,208	33
	\$2,870	89

*Size and Length of Sewer.*

301 feet 6-in., pipe house drain.  
 234.95 feet 30-in., pipe catch-basin drain.  
 152.15 feet 24-in., pipe catch-basin drain.  
 372.60 feet 12-in., pipe catch-basin drain.  
 52.18 feet 10-in., pipe catch-basin drain.  
 3 catch-basins.  
 2 drop inlets.

## APPENDIX F.

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### ANNUAL REPORT OF THE STREET CLEANING DIVISION OF THE STREET DEPARTMENT.

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923 TREMONT BUILDING, BOSTON, Feb. 1, 1897.

BENJAMIN W. WELLS, ESQ., *Superintendent of Streets*:

DEAR SIR: I respectfully submit the annual report of the expenditures and income of the Street Cleaning Division of the Street Department for the financial year ending Jan. 31, 1897.

I assumed charge of the Street Cleaning Division of the Street Department on March 1, 1896, which was one month after the beginning of the financial year. The district lines of the Division were changed in 1895 with a less number of districts than had been originally established and covering less territory; that is to say, that the change was not intended to cover the Brighton and Dorchester Districts, the scope of the push-cart patrol system being continued about the same.

District No. 1, South Boston,—formerly West End.

Districts No. 2 and No. 3, East Boston and Charlestown,—formerly North End, and South End respectively.

District No. 7, Roxbury, remaining as before.

District No. 8, South End and city proper,—formerly South End and Back Bay.

District No. 9, Back Bay,—formerly Charlestown and East Boston.

District No. 10, West End and North End,—formerly called No. 1 and No. 2, practically remaining the same.

All of the headquarters of the respective districts are at the Sanitary Division stables and yards, with the exception of District No. 1, South Boston, where the stable is directly under control of the Division. The push-cart system headquarters are at the dumping scow on Atlantic avenue and are also separated from the Sanitary Division. I would respectfully recommend that any change that may be contemplated for any reorganization or enlargement of the office and yard facilities of this Division be considered in such a manner that the Street Cleaning Division stables and offices of the different districts be so arranged that they may be entirely separated from those of any other Division.

The Charlestown force, covering the Charlestown and East Boston districts, is obliged to care for the streets of East Boston, giving two days a week for that purpose. It is not only taking

away from Charlestown the care that it should receive, but it is not giving the East Boston District the necessary attention; and I respectfully recommend that some action be taken as regards the establishment of a separate street cleaning district in East Boston.

#### EQUIPMENT.

The principal part of the equipment of the Division consists of double and single sweeping machines, dirt carts, water carts, cart horses, machine horses, single and double harnesses, rubbish wagons, waste barrels, push carts and barrels and a snow-plough, which has been tried during the winter, and will probably be purchased.

The dirt carts are in bad shape, many of them needing extensive repairs, and some entirely unfitted for use. The time has come when a tight cart must be used. Since the Division was organized, it has been using exclusively the old-style ash cart, which seems to me no longer fully useful for the work on account of being leaky. I am about ready to place on the street a cart, built on somewhat different lines than the one now in vogue. The cart is made in a somewhat heavier manner, but the remodelling has been confined wholly to the tail-boards, with a view to making the carts nearly water-tight; this cart will be given a thorough test as regards water-tight properties. I respectfully and earnestly recommend that twenty new dirt carts be purchased during the year.

The various double and single machines and the water carts have undergone extensive repairs during the past year, so that I am able to say that the machines, at least, are in better condition than ever before.

The harnesses, although old, are in very fair shape. No new harnesses have been purchased during the year.

The Division maintains a blacksmith and carpenter shop in the South yard of the Sanitary Division. Here the machines, carts, push-carts, etc., are repaired.

#### VIOLATION OF CITY ORDINANCES.

The greatest drawback to street cleaning that we have in this city to-day is the constant and unrestrained violation of the City Ordinances in relation to throwing rubbish and waste material into the streets. With a good and effective street cleaning organization as we have to-day, and with a determined and constant co-operation of the Police Department of the city, we ought to be able to preserve a state of cleanliness that would be reasonably acceptable to the public. If it should prove impossible, for any reason, to secure such co-operation, it might be practicable—and it would certainly be worth the experiment—to have special officers or inspectors appointed, who should be invested with all the authority of the police to enforce these

sanitary ordinances. As we have not had the power of acting directly ourselves, I have instructed my foremen throughout the city to act as inspectors and to make formal complaints to the captains of the various precincts. In this way, at least, I hope to be able to bring to the attention of the police authorities all persons who are violating the City Ordinances.

#### CROWDED SECTIONS.

I would call to your attention certain sections of the city which, so far as street cleaning is concerned, do not become any better. At the North and West Ends there is a large foreign population, and, although we have now to contend with streets travelled more than formerly, with an increased population and in a small crowded area, peopled by entirely new and in many cases ignorant classes, the Street Cleaning force has not been materially increased since the organization of the Division.

#### SUBWAY.

The operations of the Transit Commission during the past year have made our work extremely laborious and expensive, on account of the large amount of teaming of materials used in the construction, not to mention the dirt that has been excavated and carted away. The work on the subway being along the principal thoroughfares, we have endeavored to maintain the same standard of efficiency, in spite of the many annoyances and disturbances occasioned by this important work. While there has been some disposition, on the part of the Transit Commission, to remove the excess of dirt occasioned by the operations, there has not at all times been a satisfactory amount of painstaking on the part of the contractors.

#### PUSH-CART SYSTEM.

The push-cart system has been managed effectively and efficiently during the past year. The force has been increased by the addition of nine new routes, covering the newly-paved portion of Huntington and Columbus avenues, the Salem street section at the North End and the Genesee street section at the South End. Beacon street has been patrolled from Charles to Tremont street, and we have also placed a man in charge of all the crossings at Copley square. We have also adopted a uniform cap and badge, and are now contemplating the semi-uniforming of the push-cart patrolmen.

I will endeavor during the coming year to still further extend the system, and also to make some minor changes that I believe will render the force more efficient, such as the addition of an extra barrel to all the men and the shortening of some of the routes, in order that the sections covered may be kept in a more cleanly condition.

During the past year the barrels have been kept in a much neater condition; both carts and barrels being constantly repainted. I would recommend that some facilities be afforded at the dock for the cleaning of the barrels and carts used in the push-cart system.

#### PAPER NUISANCE.

In the outlying districts, where the streets are mostly of macadam, the paper nuisance shows to the greatest disadvantage. Macadam streets are cleaned only once a week, and unless a paper patrol is maintained, it would seem at times as if they were totally neglected. My idea is to map out routes, so that all macadam streets north of Massachusetts avenue, and also in South Boston, Charlestown and Roxbury will be covered or patrolled every day by teams, which will be required to gather up only waste papers, pieces of wood, and other such unsightly matter that may be blown or cast into the streets.

#### SNOW WORK.

During the past winter we have maintained, in addition to our regular force, an emergency force, which had the care of all crossings in one of the down-town sections, namely, between Kneeland and State streets, and Atlantic avenue and Tremont street. This work has also been extended in a measure around the market section, and the thoroughfares leading from the centre of the city to the Union Station. The work of the emergency and the regular force has been to keep the crossings free from snow, slush and water at all times; it has proved very effective, and has almost wholly put a stop to the incessant complaints that the Division was in the habit of hearing in previous winter seasons.

#### DUMPS.

Boston is at a great disadvantage, especially in the city proper, as regards its dumping facilities. Although we have an extensive wharf front for the placing of dumping scows, the city maintains but one. In New York City there are nineteen dumping-stations equipped with one or more scows. A dumping-station should be maintained at the North End or along the line of the Charles river. At the present time, long hauls are necessary, and result in an increased expenditure for carting. At the South End and Back Bay we are still able to hold a few good places on the low lands; but the time will soon come when even these will be filled, and then it will be necessary to find new dumps, either along the water front or farther back in the suburban localities.

#### CIVIL SERVICE.

At the present time, there is a large percentage of old men employed by this Division, and the Veterans' Preference Act makes it hard to draw into the service the best and most

desirable. Men of fifty years and upward are not fitted for the energetic and arduous duties of this Division. It would seem that this Division of the Street Department, like the Police and Fire Departments, should have an age limit, and that a considerably lower one than fifty years, or else should not be handicapped by the workings of the Veterans' Preference Act as regards the appointment of its force. Appointments and promotions have been made wholly with regard to fitness, ability and merit, and no discharges have been made without first a fair consideration and only for good and sufficient cause. It has been my constant aim to conform to the Civil Service rules and requirements.

#### RELATIONS OF THE STREET CLEANING DIVISION TO THE PAVING DIVISION.

I would respectfully call to your attention, that during the past year — part of the time in the spring — the Paving Division was employed in shaping the macadam street surfaces and scraping the gutters; and I would, consequently, suggest the importance of showing, in connection with the work of this Division, the number of cart loads of waste and dirt taken from the macadamized streets of the city by the Paving Division.

Good and successful pavements are essential for good and successful street cleaning.

The many poor and uneven pavements throughout the city proper make the work of the Street Cleaning Division much harder, especially in streets where there are railroad tracks. The tendency of pavements for many years in Europe, and for half a generation in America, has been toward smoother surfaces and fewer joints. Macadam and Telford streets are not desirable within the truly city limits; the wear of heavy traffic and the effect of wet, dry and freezing weather disintegrate them rapidly. Under more than the lightest traffic, Telford and macadam cannot compete in economy, if maintained with proper care, with granite, asphalt, or even wood pavements. Smooth and durable pavements upon the streets would encourage efforts to clean them, and the entire neighborhood is influenced to a better appearance. Streets in the tenement and similar quarters should be laid with asphalt, as the surface of such pavements, being without joint, is easily cleaned, and could also be flushed or washed free from germs of all kinds by each rainfall.

#### CONCLUSION.

Realizing that the push-cart system is one of the most effective means of keeping our streets clean, I have endeavored to enlarge it, and have done so consistently with my appropriation. With streets cleaned every twenty-four hours by machinery, and patrolled every day by push-carts, a reasonable state of cleanliness can be expected.

I cannot conclude this report until I have expressed my appreciation of the good work of the clerks, the foremen and sub-foremen of this Division. Their co-operation and support have been at all times cordial and earnest, without which I am free to say it would have been impossible to show the work I here submit.

Respectfully submitted,

JOSHUA ATWOOD, 3D.,

*Deputy Superintendent.*

#### FINANCIAL STATEMENT.

Amount of appropriation . . . . .	\$300,000 00
Transferred from Central Office . . . . .	218 15
Transferred from Bridge Division . . . . .	906 87
Transferred from Ferry Division . . . . .	05
Transferred from Paving Division . . . . .	2,961 85
Transferred from Sewer Division . . . . .	2,172 94
Transferred from Surplus Revenue, 1896-97 . . . . .	4,006 53
 Total amount of appropriation . . . . .	\$310,266 39
Total amount of expenditures . . . . .	\$310,266 39

#### OBJECTS OF EXPENDITURES.

##### *Superintendence.*

Salary of Deputy Superintendent . . . . .	\$3,000 00
Office pay-rolls . . . . .	4,210 90
Stationery . . . . .	161 54
Printing . . . . .	545 77
Board of horses . . . . .	612 32
Telephone service . . . . .	271 65
 Total cost of superintendence . . . . .	\$8,802 18

#### CLEANING STREETS.

*Including the Cost of Sweeping, Loading, and Removal of Street Dirt.*

District 1. South Boston . . . . .	\$16,531 62
District 2-3. East Boston and Charlestown . . . . .	13,942 11
District 7. Roxbury . . . . .	16,849 50
District 8. South End . . . . .	53,280 47
District 9. Back Bay . . . . .	6,566 18
District 10. West End and North End . . . . .	39,012 79
 Total cost of cleaning streets . . . . .	\$145,682 67

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CLEANING GUTTERS.

*Including Cost of Sweeping, Loading, and Removal of Street Dirt.*

District 1.	South Boston . . . . .	\$2,862 72
District 2-3.	East Boston and Charlestown . . .	3,569 34
District 7.	Roxbury . . . . .	6,425 16
District 8.	South End . . . . .	3,334 90
District 9.	Back Bay . . . . .	3,960 33
District 10.	West End and North End . . .	1,229 92
Total cost of cleaning gutters . . . .		<u>\$21,382 37</u>

Total length of gutters cleaned, 2,819.94 miles.

Average cost per mile (including dump), \$7.74.

COST OF MAINTAINING DUMPS.

District 1.	South Boston . . . . .	\$498 00
District 2-3.	East Boston and Charlestown . . .	568 00
District 7.	Roxbury . . . . .	
District 8.	South End . . . . .	1,289 74
District 9.	Back Bay . . . . .	439 95
District 10.	West End and North End . . .	1,124 32
Total cost of dumps . . . . .		<u>\$3,920 01</u>

REMOVING SNOW.

*Including Labor on Crossings, in Streets, Carting of Snow, etc.*

District 1.	South Boston . . . . .	\$2,862 94
District 2-3.	East Boston and Charlestown . . .	2,326 03
District 7.	Roxbury . . . . .	5,964 70
District 8.	South End . . . . .	9,918 29
District 9.	Back Bay . . . . .	779 82
District 10.	West End and North End . . .	6,439 08
Total cost . . . . .		<u>\$28,290 06</u>

MISCELLANEOUS WORK.

This shows the cost of such work as may not be characterized the same in all districts.

*Including Miscellaneous Work, Sweeping and Carting of Leaves, etc.*

District 1.	South Boston . . . . .	\$195 82
District 2-3.	East Boston and Charlestown . . .	6 30
District 7.	Roxbury . . . . .	278 50
District 8.	South End . . . . .	271 95
District 9.	Back Bay . . . . .	7 35
District 10.	West End and North End . . .	192 38
Total cost . . . . .		<u>\$932 30</u>

## CLEANING CROSSINGS.

*Including Cost of Manual and Machine Labor.*

Cost of cleaning crossings . . . . .	\$1,382 84
Removing snow by patrol . . . . .	2,463 60
Total cost . . . . .	<u>\$3,846 44</u>

## PATROLLING BY DISTRICTS.

*This Includes the Cost of Picking up and Removal of Refuse Papers, etc., from the Streets.*

Cost of paper patrol . . . . .	<u>\$1,697 95</u>
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## PUSH-CART PATROL SYSTEM.

Superintendence, inspection, etc. . . . .	\$2,137 98
Push-carts, including labor and teaming . . . . .	29,483 55
	<u>\$31,621 53</u>

STREET DEPARTMENT — STREET CLEANING DIVISION. 445

**Recapitulation of Expenses, exclusive of Superintendence, Stable and Yard Expenses, Stock and Miscellaneous Accounts.**

## STABLE AND YARD EXPENSES.

*Including the cost of the South End, West End, Roxbury, South Boston and Charlestown stables, as follows:*

Superintendence of stables . . . . .	\$1,219 53
Labor, including the cost of feeders, hostlers, broom-makers, blacksmiths, carpenters, watchmen, yardmen, messenger, etc. . . . .	20,100 71
Cart and carriage repairs . . . . .	4,796 16
Harness repairs . . . . .	1,014 19
Horse-shoeing . . . . .	3,103 14
Sweeping-machine repairs . . . . .	2,635 35
Stable and shed repairs . . . . .	302 78
Street car tickets and ferry passes . . . . .	806 00
Tool repairs . . . . .	101 05
Veterinary services and medicine . . . . .	1,268 19
<b>Total . . . . .</b>	<b>\$35,347 10</b>

## STOCK ACCOUNT.

Broom stock purchased . . . . .	\$4,705 15
Carts and carriages purchased . . . . .	530 00
Harnesses and horse furnishings purchased . . . . .	297 70
Horses purchased . . . . .	1,835 00
Tools purchased . . . . .	537 32
Waste barrels . . . . .	175 00
Patrol stock and maintenance of same . . . . .	1,211 23
<b>Total . . . . .</b>	<b>\$9,291 40</b>

## MISCELLANEOUS.

Holidays . . . . .	\$11,562 46
Scow (cost of disposal at sea of 36,072 loads of street-dirt) . . . . .	4,794 97
Sundries . . . . .	2,353 56
Committee on claims, vote of . . . . .	1,500 00
<b>Total . . . . .</b>	<b>\$20,210 99</b>

## GENERAL RECAPITULATION OF EXPENSES.

Superintendence . . . . .	\$8,802 18
Cleaning streets . . . . .	145,682 67
Cleaning gutters . . . . .	21,382 37
Maintaining dumps . . . . .	3,920 01
Removal of snow and ice . . . . .	28,290 86
Miscellaneous work . . . . .	932 30
Cleaning crossings . . . . .	3,846 44
Paper patrol in business districts . . . . .	1,697 95
<i>Carried forward . . . . .</i>	<i>\$214,554 78</i>

STREET DEPARTMENT — STREET CLEANING DIVISION. 447

<i>Brought forward.</i>	.	.	.	.	.	\$214,554	78
Patrol system, push-carts	.	.	.	.	.	31,621	53
Stable and yard expenses	.	.	.	.	.	35,347	10
Stock account	.	.	.	.	.	9,291	40
Miscellaneous	.	.	.	.	.	20,210	99
						\$311,025	80

NOTE.—Of the above amount, the sum of \$759.41 was paid by other departments and divisions, on account of work done, etc., making the net expenses of this division, as shown in the financial statement, \$310,266.39.

INCOME.

Amount of the bills deposited with the City Collector during the financial year ending Jan. 31, 1897, \$5,833.08.

Table showing the Cost per Mile of Cleaning the Streets in each District, exclusive of Supervision and other Expenses.

DISTRICTS.	Miles of Streets Cleaned.	Cost of Cleaning.	Pro Rata Cost of Dumps.	Total Cost.	Cost per Mile.
1.....	990.46	\$16,531 62	\$424 49	\$16,956 11	\$17 11
2-3.....	1,046.47	13,942 11	452 21	14,395 32	13 75
7.....	655.01	16,349 50	.....	16,349 50	24 96
8.....	5,280.72	53,280 47	1,213 73	54,494 20	10 31
9.....	676.08	6,566 18	274 42	6,846 60	10 11
10.....	3,430.82	39,012 79	1,089 94	40,102 73	11 68
	12,079.56	\$145,682 67	\$3,455 79	\$149,138 46	

Average cost per mile of cleaning streets in six districts, exclusive of supervision, etc., \$12.34.

Table showing the Cost per Mile of Cleaning the Streets in each District, including Supervision, Labor, Yard and Stable Expenses.

DIS-TRICTS.	Miles of Streets Cleaned.	Cost of Cleaning Streets.	62% of the Total Cost of Supervision.	73% of the Total Cost of Yard and Stable Expenses.	Total Expense.	Total Cost per Mile.
1 ..	990.46	\$16,956 11	\$620 48	\$2,933 69	\$20,510 28	\$20 70
2-3 ..	1,046.47	14,395 32	526 76	2,490 63	17,412 71	16 62
7 ..	655.01	16,349 50	598 27	2,828 74	19,776 51	30 19
8 ..	5,280.72	54,494 20	1,994 08	9,428 38	65,916 66	12 48
9 ..	676.08	6,846 60	250 32	1,183 53	8,274 45	12 23
10 ..	3,430.82	40,102 73	1,467 44	6,938 41	48,508 58	14 13
	12,079.56	\$149,138 46	\$5,457 35	\$25,803 38	\$180,399 19	

Average cost per mile of cleaning the streets in six districts, including supervision, etc., \$14.93.

**Table showing the Number of Loads of Street Dirt Removed.**

DISTRICTS.	Number of Loads of Dirt Removed.	Cost per load of cleaning streets and removing to dumps, in- cluding Fore- man's Superin- tendence.
1 . . . . . . .	15,751	\$1 23
2-3 . . . . . . .	11,692	1 49
7 . . . . . . .	21,240	1 07
8 . . . . . . .	29,396	1 92
9 . . . . . . .	6,502	1 61
10 . . . . . . .	21,411	1 87
Removed by paper patrol . . .	105,992	Barrel loads.
Removed by push-cart, patrol system . . .	1,616	
Removed by district push-carts . . .	5,353	58,986
	.	2,692
Totals . . . . . . .	112,961	61,678
Total number of cart loads removed . . . . . . .		112,961
Total number of barrel loads removed . . . . . . .		61,678

36,072 loads of the above dirt (or 31 per cent) were delivered at the dumping scow, the towing of which to sea cost 15 cents per load. In addition to the above, 28,819 single loads and 3,688 double loads of street scrapings were removed from the streets by the Paving Division.

**PUBLIC WASTE BARRELS.**

Total number of waste barrels emptied . . . . .	<u>26,346</u>
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**FORCE EMPLOYED.**

Deputy Superintendent . . . . .	1
Clerk . . . . .	1
Messengers . . . . .	3
Employees in the division not including the above	321
Entire force . . . . .	<u>326</u>
Average force employed during the year . . . .	<u>316</u>

## APPENDIX G.

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### REPORT OF DEPUTY SUPERINTENDENT OF STREET WATERING DIVISION.

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742 TREMONT BUILDING,  
BOSTON, Feb. 1, 1897.

Mr. BENJ. W. WELLS, *Superintendent of Streets*:

DEAR SIR: I herewith respectfully submit the annual report of the expenditures, income and operations of the Street Watering Division, for the financial year ending Jan. 31, 1897.

The street watering season of 1896 has been a remarkable one in many ways. It was one of the most trying from a weather standpoint, and this, coupled with the fact that the appropriation was smaller by many thousands than heretofore, makes the results attained highly satisfactory. While expressing satisfaction with the work accomplished during the year, the division does not wish to give its approval to continued small appropriations for street watering purposes. The growth of the city, and the open character of our winters, necessarily lengthening the season, make it imperative that a substantial increase should be made in the amount assigned for this work.

The season began the 25th of March, and carts were employed in parts of the city proper as late as the 4th of December. Some were really needed during days in January, but the thermometer was so low that ice formed as soon as water was thrown from the carts, which were called out to relieve the dust nuisance. It is decidedly dangerous to horse travel to attempt to water streets when the temperature is below freezing, and there seems to be no method by which the dust can be overcome, except, perhaps, by frequent sweeping and scraping.

The construction of the subway has been the occasion of much dust, and consequent public complaint. The best possible effort has been made to keep the dust down along Tremont and the other streets used by the Transit Commissioners, but when the weather becomes cold it is a nuisance that frequent sweeping cannot altogether abate.

As Blue Hill, Huntington, and Commonwealth avenues near completion it becomes necessary to provide for their care. The present force of carts has been given more miles of streets than efficiency should require, and an increase must be made to water the avenues mentioned. It is also the opinion of

the division that an auxiliary force should be maintained to use in emergency cases and on exceptional days when the regular number of carts is inadequate. Fully seven extra carts are needed for regular work during the coming season. They are required by the natural growth of the city, the acquisition of the above avenues, and the reduction of some of the overworked routes.

The auxiliary force should be maintained as follows: South Boston, 2 carts; East Boston, 2 carts; Charlestown, 1 cart; Brighton, 3 carts; West Roxbury, 4 carts; Dorchester, 4 carts; Roxbury, 4 carts; city proper, 5 carts; total, 25. This force would be very valuable during an unusually dry spell, and in case of negligence on the part of any of the regular force could be called upon to displace them. To discipline a cart-owner, where there are only enough carts to do the work, is like punishing the division; for the force is made so much less, no carts as a rule being available to do the work of the negligent one. In connection with providing this auxiliary force it may be well to ask, will the contractors invest in a plant which insures so little profit as a watering cart? This is the one great impediment in providing the force.

During an average season some 202,160,000 gallons of water are used for street watering. This tremendous use of fresh water must, as years go on, be prevented by the use of salt water. The systematic and gradual construction of salt water mains is the only solution to the introduction of salt water, and this has already been suggested in connection with the use of salt water for fire purposes. To use salt water now by the old pumping-stations would entail a very large expense, and is impracticable. Attention is called to this matter here to show the necessity of providing for some method of saving the fresh water, and it is needless to state that salt water for watering streets is superior to it.

The expense of the division last year was \$71,211.81, the smallest in its history. It may be considered the lowest figure at which our 305 miles of macadam streets can be watered. The efficiency and method of the department has reached the highest degree of excellence; and in the future the expenses may be expected to show an increase commensurate with the growth of the city.

The trial of watering streets by electric watering cars has proved such a success that it should be one of the earliest efforts of the department to make the West End Street Railway Company water the streets through which its tracks run. If this is accomplished the increase demanded for the regular force could be provided from the carts removed from the streets on which the West End Street Railway Company will operate its cars. Nothing is risked in saying that not only could the division do this, but it could also give extra watering service throughout the city.

STREET DEPARTMENT — STREET WATERING DIVISION. 451

The following sums have been expended for street watering during the past six (6) years:

1891 . . .	\$104,263 62	1894 . . .	\$87,169 08
1892 . . .	94,507 80	1895 . . .	76,424 70
1893 . . .	99,430 16	1896 . . .	71,211 81

The income during the last year was \$952.50.

Respectfully submitted,

THOS. J. FINNERAN,

*Deputy Superintendent Street Watering Division.*

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FINANCIAL STATEMENT.

Amount of appropriation . . .	\$70,000 00	
Transferred from Sewer Division . . .	1,211 81	<hr/>
Total amount of appropriation . . .	\$71,211 81	
Total amount of expenditures . . .	\$71,211 81	<hr/>

## Objects of Expenditures.

Districts.	Hired Cars.	Labor.	Water- Posts.	Bicycles and Repairs.	Horse-hire.	Repairs of Cars.	Board of Horses.	Sundries.	Totals.	Districts.
South Boston.....	\$3,475 00	\$399 00	\$188 44	\$73 00	....	....	....	....	\$4,135 44	South Boston.
East Boston.....	3,532 50	395 50	222 09	36 50	....	....	....	....	4,186 89	East Boston.
Charlestown.....	3,240 00	407 75	134 60	36 50	....	....	....	....	3,818 35	Charlestown.
Brighton.....	6,567 50	406 00	296 12	36 50	....	....	....	....	7,306 12	Brighton.
West Roxbury.....	9,045 75	686 00	444 18	73 00	....	....	....	....	10,248 93	West Roxbury.
Dorchester.....	9,105 75	819 00	551 86	73 00	....	....	....	....	10,549 61	Dorchester.
Roxbury.....	9,932 25	812 00	457 64	73 00	....	....	....	....	11,274 80	Roxbury.
City Proper.....	11,434 50	5,090 31	351 97	36 45	\$290 00	\$89 25	\$325 60	\$873 30	19,691 38	City Proper.
Totals.....	\$56,333 25	\$4,015 56	\$22,046 90	\$437 95	*\$290 00	\$989 25	\$625 60	\$873 30	\$71,211 81	Totals.

\* New horse included.   <sup>2</sup> Five hydrants included.

## INCOME.

The division watered in front of 127 school-houses, 9 police stations and 37 engine-houses. The charges against the Board of Police and Fire Department have been paid, but the School Committee, as usual, ignores its debt.

The following sums were charged for street watering, and bills for the same deposited with the City Collector during the financial year ending Jan. 31, 1897 :—

Fire Department . . . . .	\$470 40
Board of Police . . . . .	136 85
Homoeopathic Hospital . . . . .	105 00
Louisburg Square . . . . .	100 00
Fairfax and Beaumont streets . . . . .	75 00
Marcella-street Home . . . . .	28 00
State House grounds . . . . .	25 00
Boston Dispensary . . . . .	12 25
 Total . . . . .	 <u>\$952 50</u>

The bill against the School Committee amounts to \$3,466.54.

## Summary of Day Work paid for by the City.

No.	DISTRICT.	No. Carts.	No. Miles Covered.	Average per Cart.
1 . .	South Boston . . .	9	23.05	2.56
. .	East Boston . . .	8	21.63	2.70
. .	Charlestown . . .	7	15.00	2.14
. .	Brighton . . .	13	32.65	2.51
5 . .	West Roxbury . . .	18	61.06	3.39
6 . .	Dorchester . . .	19	63.31	3.33
7 . .	Roxbury . . .	19	54.19	2.85
8 . .	Back Bay . . .	10	15.93	1.59
9 . .	Beacon Hill . . .	2	4.25	2.12
10 . .	South End . . .	7	14.36	2.05
 Totals . . . .		112	305.41	2.72

The above summary shows that 112 carts watered 305.41 miles of macadam streets this year. Last year the same number of carts watered 301.92 miles of streets. The cost of the watering exclusive of supervision was \$184 per mile, or \$56,333.25, against \$214 per mile last year and an expense of \$64,532.75. The work this year, as last, was done entirely by day work under the immediate control of the division. The abolition of the contract work and substitution of day work has given street watering service at the lowest possible cost, and hereafter with the growth of the city and the open character of our winters the expense may be expected to increase.

Attention should be directed to the fact that the appropriation is now so small that only the absolute necessities of the service are provided for, and little or no freedom is allowed for unusual conditions. Streets outside of the City Proper are watered twice a day and this is sufficient for the majority of them, but there are many on which the traffic is so great that they should be watered three and four times. Provisions are now made whereby all important highways are watered at least three times, but in some sections the force and expense will not permit of this really necessary arrangement.

Our citizens are continually demanding increased service, and no work done by any other branch of the department is more appreciated than that of street watering.

#### Work done by Contractors at the Expense of the Abutters.

DISTRICTS.	Contractors.	Carts.	Miles.
City Proper . . . .	Daniel Clark . .	4	4.45
City Proper . . . .	Potter Bros. . .	5	8.75
City Proper . . . .	Proctor Bros. & Co. .	5	7.25
City Proper . . . .	C. Nute & Son . .	1	2.73
East Boston . . . .	J. J. Fitzpatrick . .	1	2.00
Charlestown . . . .	W. H. Quigley . .	1	2.00
Roxbury and South Boston . . . .	H. P. Cook & Co. .	3	7.78
Roxbury . . . .	Gilligan Bros. . .	1	1.25
Totals . . . .	. . . . .	21	36.21

The above table gives the work done by contractors for the abutters on paved streets. The work is substantially the same as last year. Notwithstanding how many times explained it always seems necessary to state for a large number that the division waters only macadam streets.

While upon this subject it is perhaps well to point out that the method of watering paved streets is not altogether satisfactory, inasmuch as some receive service they do not, or are not willing to pay for. There is no compulsion about the watering of paved streets, and where A desires it done B may not be willing to pay for his share. Such conditions frequently arise, and the contractor refuses to water except where he is assured a profit for his work.

From a careful investigation it would appear that the watering of all paved streets could be done by the division for \$50,000. It needs no argument to prove that the watering could be done better under day than contract work, and there are many parts of the city not now watered because of the expense, where this privilege would be a great benefit to the health of the people living in the congested communities.

In connection with the suggestion that the city water the paved streets free of cost to the abutter it should be urged that the division still feels that the West End Street Railway Company ought not to be relieved by any such arrangement of its manifest duty to water its tracks. If the West End took care of the streets through which it runs its cars the expense would be very much reduced; but \$125,000, it may be safely stated, will water every accepted street, paved and macadam, within the city limits. This matter is respectfully set forth for your consideration.

#### Work done by the Contractors Free of Cost to the City.

NAME.	Carts.	Miles.
Daniel Clark . . . . .	$\frac{1}{2}$	0.86
Potter Bros. . . . .	$\frac{3}{4}$	1.12
Proctor Bros. & Co. . . . .	1	1.75
O. Nute & Son . . . . .	$\frac{1}{8}$	0.21
H. P. Cook & Co. . . . .	$\frac{8}{4}$	1.09
Gilligan Bros. . . . .	$\frac{1}{4}$	0.54
Totals . . . . .	$2\frac{5}{8}$	5.57

The amount of work done by the contractors in return for their franchises remains the same as last year. Most of this gratuitous service is done in sections, where it would be exceedingly difficult to operate a day cart under the control of the division, as there is not enough work to keep one cart employed all the time. An expense of \$2,000 is saved the division by this watering.

#### Distribution of Carts showing Entire Amount of Work done.

NO.	DISTRICT.	Hired Carts.	Contractors' Carts.	Total.	Miles.
1 . .	South Boston . . . . .	9	1	10	25.98
2 . .	East Boston . . . . .	8	1	9	23.63
3 . .	Charlestown . . . . .	7	1	8	17.00
4 . .	Brighton . . . . .	13	. . . . .	13	32.65
5 . .	West Roxbury . . . . .	18	. . . . .	18	61.06
6 . .	Dorchester . . . . .	19	. . . . .	19	63.31
7 . .	Roxbury . . . . .	19	3	22	60.24
8, 9, 10	City Proper . . . . .	19	15	34	57.72
	Free watering . . . . .	. . .	$3\frac{5}{8}$	$3\frac{5}{8}$	5.57
	Totals . . . . .	112	$24\frac{5}{8}$	$136\frac{5}{8}$	347.16

**Water-Posts or Stand-Pipes.**

During the year three new stand-pipes were erected and three relocated for the benefit of the service. Five hydrants were established to test street sprinkling with electric cars.

The location is shown by districts:—

DISTRICTS.	1891.	1892.	1893.	1894.	1895.	1896.	Electric Hydrants.	Incr.
South Boston .	23	25	27	27	28	28		
East Boston .	16	23	28	32	33	34		
Charlestown .	19	19	20	20	20	20		
Brighton . .	25	39	42	44	44	44		
West Roxbury,	50	59	60	65	66	67		
Dorchester . .	61	72	75	82	82	83		
Roxbury . .	53	60	65	68	68	68		
City Proper .	24	42	45	48	52	53	5	1
Total . .	271	339	362	386	393	396	5	3

NOTE.—An increase of 125 stand-pipes since 1891.

The use of bicycles by the men having charge of the watering in the various sections continues to give highly satisfactory results in the matter of efficiency.

Mr. J. W. Smith, the Local Forecast Official, still obliges us with daily weather reports of great value.

The Water Department continues its assistance in the matter of meeting our requirements in the repair of stand-pipes and the use of water.

## APPENDIX H.

CITY OF BOSTON, ENGINEERING DEPARTMENT,  
50 CITY HALL, JAN. 31, 1897.

MR. BENJAMIN W. WELLS, *Superintendent of Streets*:

SIR: I herewith submit the following report of the work done under my direction for the Street Department during the year 1896.

## BLUE HILL AVENUE.

The work on this avenue from Grove Hall to Walk Hill street a distance of 2.21 miles is in a forward state. It is substantially completed from Grove Hall to the principal entrances to Franklin Park, and the remaining portion was so far advanced, that one fairly good roadway for the entire length under construction was in use during the winter. During the year the excavation or rough grading has been completed, the work on the sewers, water and gaspipes has been carried forward nearly to completion and about one-half the work of roadway construction done. The avenue to Walk Hill street should be completed during the working season of 1897.

The construction of the remaining part of the avenue from Walk Hill street to Mattapan, a distance of .65 mile has not yet been ordered.

The total amount of excavation made has been as follows:—
Earth . . . . . 136,984.53 cubic yards.
Rock . . . . . 33,913.59 “ “

Total . . . . . 170,898.12 “ “
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There has been a large surplus of excavated material, and after completing the filling required, the remainder has been disposed of as follows:—

Delivered on Lauriat avenue (haul about 0.46 mile), 7,524 cu. yds.
“ “ Geneva “ (“ “ 1.67 “ ), 6,083 “
“ “ Columbus avenue between Dimock street and West Walnut Park (haul about 1.60 miles) . . . . . 7,899 “
Delivered on Talbot avenue (haul about 0.17 mile), 5,000 “
Total . . . . . 26,506 “

In addition to the above, large and unmeasured quantities of filling have been delivered on Franklin Field, Franklin Park, and

on Blue Hill avenue beyond Walk Hill street. On the section nearest Grove Hall, the surplus, amounting to 3,291 cubic yards, was disposed of by the contractor under the contract. A large part of the rock excavated was of such inferior quality as to be only suitable for filling. From the cut near Walk Hill street, however, suitable stone was found, and enough was saved to furnish stock for Telford base for about 16,000 square yards or about 1.07 miles of one roadway.

The total cost of excavation including its delivery as above indicated has been as follows:—

Earth, 136,984.53 cubic yards	.	.	.	.	\$57,603	44
Average cost per cubic yard	:	:	:	:	0.4205	
Rock, 33,913.59 cubic yards	.	.	.	.	35,620	87
Average cost per cubic yard	:	:	:	:	1	05

Most of the work remaining to be done is under contract and partially completed. There remains one section of roadway, from Glenway street to Canterbury street, which can be put under contract on the completion of the sewer, gas and water-pipe work. The construction of a retaining-wall next Franklin Park must follow the completion of the above-named section of roadway, as its site is now occupied by the temporary roadway.

The Street railroad has been rebuilt from Grove Hall, and extended 0.95 mile to Harvard street.

The grade established for Blue Hill avenue caused a cut of about 11 feet at the entrance to Back street (now Harvard street) and a temporary connection was made between them; this was done by contract and is not yet entirely completed. The cost will be about \$1,110.

At McLellan street the difference in grade was about 10.5 feet and excavation for a connection has been in progress by the Street Department during the winter; at other intersections, where there are only slight differences in grade, connections will be made by the contractors.

#### COLUMBUS-AVENUE EXTENSION.

Columbus avenue, from Northampton street to the Roxbury crossing, has been substantially completed. It has an asphalt roadway, from curb to curb, 54 feet in width, with a double-track street railway. The rails used are full-grooved, with both tread and guard on a level with the asphalt surface.

From Northampton street to the southerly line of Terry street, a distance of 3,276 feet, the surface is Trinidad asphalt, laid by the Barber Asphalt Paving Company, the concrete base is generally 6 inches in thickness, but for a part of the length over the deepest mud the thickness was increased to 10 inches. The remainder of the work, 884 feet in length, was laid on a 6-inch concrete base by the Boston Asphalt Company, with imported Sicilian natural rock asphalt. The preparation of the

roadbed was made by the regular force of the Street Department, large quantities of unsuitable material was removed, and 10,987 cubic yards of gravel was delivered by contract and used for grading. A steam-roller was kept in use upon it for several months, and while settlement is apparent in places, the general result is better than could have been reasonably expected, when the very bad character of the ground is taken into account. The edgestone were set and the brick sidewalks laid under the supervision of the Street Department. The price paid for asphalt, including a 6 inch base of American cement concrete, was \$2.90 per square yard for both sections. The section of the avenue from Massachusetts avenue to Northampton street was surfaced with Trinidad asphalt, so that Columbus avenue now has a continuous asphalt surface from the Boston & Albany R.R. bridge to the Roxbury crossing, a distance of 1.5 miles.

The section of the avenue between Roxbury crossing and Stony brook, near Ritchie street, is occupied at present by the contractors for the new conduit for Stony brook, and the surfacing of the street can only be commenced upon the completion of this work, and of the work upon the other sewers, gas and water pipes.

The section between Ritchie street and West Walnut park can be put under contract upon the completion of the underground pipe work, which is in a forward state. The remaining section of the avenue, extending from West Walnut park to Walnut avenue, is nearly completed. It is a Telford macadam roadway with edgestones and brick sidewalks. It was let in one contract. The surplus excavated material was used upon the adjoining section, and the work was carried far enough before it was closed by the weather, to allow the roadway to be kept open during the winter.

It is expected that the avenue can be completed during the working season of 1897.

#### HUNTINGTON AVENUE.

This avenue extends from Copley square to the Brookline line, a length of 2.25 miles. From Copley square to Francis street, a distance of 1.75 miles, it is 100 feet in width, and is built with a central reserved space 25 feet wide for street cars, two roadways each 25 feet wide and two sidewalks each  $12\frac{1}{2}$  feet wide. The remainder of the avenue is 80 feet in width, with one roadway 54 feet in width, with a double track street railway in the centre, built in the usual manner without a special reservation. The sidewalks are each 13 feet wide. Beginning at Copley square the first section .13 of a mile long, to the Boston & Albany R.R. bridge, has Telford macadam roadways and brick sidewalks. This section was built by the regular force of the Street Department. The bridge over the railroad was stripped, cleaned, painted and newly floored above the iron girders. One new girder

was added to carry a new 42-inch water pipe, and in rebuilding, the surface of the bridge was rectified to correspond with the revised grade and cross section of the avenue.

From the bridge to Gainsborough street, a distance of .57 of a mile, the roadways are laid with natural rock asphalt, on a 6-inch American cement concrete base. The grading was done by the regular force of the Street Department. The edgestones and brick sidewalks were laid by contract with materials furnished by the department. The asphalt including base was laid by the Boston Asphalt Company and cost \$2.90 per square yard. The intersection at Massachusetts avenue which has double street railroad tracks on each avenue, connected by eight curves, is paved with granite blocks on gravel. The next section, from Gainsborough to Longwood avenue .78 of a mile in length has Telford macadam roadways and gravel sidewalks; it was built by H. Gore & Co. with materials principally furnished by the Street Department. The remainder of the avenue, .74 of a mile in length has Telford macadam roadways and was built by Doherty & Connors, with materials furnished by the Street Department. A few details remain to be completed upon this avenue and the work done upon it late in the season will require some further attention early in the spring.

The reserved space upon which the street cars run has been loamed, with the intention of seeding it to grass; this work has been done by the West End Street Railway Company which has also done similar work upon Commonwealth-avenue extension and Blue Hill avenue.

#### BRIGHTON AVENUE.

This avenue extends from Commonwealth avenue to Union square, Allston, a length of .67 of a mile. It is 100 feet wide, with a central loamed reservation 25 feet wide, for street cars, two roadways, the northerly one 30 feet wide, and the southerly one 25 feet wide, and two sidewalks, each 10 feet wide. The roadways are built of Telford macadam, with 10-inch base and 6-inch cracked stone covering, with block stone gutters, edgestones and gravel sidewalks.

The work was done by Doherty & Connors, with materials (except gutter blocks and flagging) furnished by the Street Department. The surplus excavated material was deposited on Commonwealth avenue, near Cottage-Farm bridge. The work of building has been completed, with the exception of repairing such defects as may develop during the winter.

#### COMMONWEALTH-AVENUE EXTENSION.

The extension of Commonwealth avenue to the Newton line has been so far completed as to be in use during the winter. Some work is yet to be done, and work done late in the season will require attention in the spring. The avenue has been in use

since September. The work of excavation under Neil McBride's contract, let in 1895, was completed early in the year, and large quantities of excellent stone for Telford base and for crushing, including a quantity of the finest trap rock, was quarried and stored on adjoining land, and enough to supply the city's crusher was delivered daily at the Chestnut Hill avenue crusher, near by. Substantially enough stone was quarried and saved to build the roadways and furnish a foundation for the sidewalks. The work of building the avenue was let to John A. Whittemore's Sons, in May, 1896. Block stone for gutters was furnished by the Street Department, and the contractors hauled the stone previously quarried and not required for Telford base to the crusher, and drew crushed stone from the stock there as required. The roadways are built with an 8-inch Telford base and 4-inch crushed stone surface, block stone gutters, without edgestones, and gravel sidewalks, with broken stone foundation.

The width of the avenue at this section is 120 feet. The northerly roadway is 25 feet wide, the southerly roadway 40 feet wide, the reserved and loaned space for street cars is 25 feet wide, and the two sidewalks are each 15 feet wide.

The stone arch which marked the entrance to the Chestnut Hill Driveway was taken down and stored on the grounds of the Water Department by William Miller, at the contract price of \$874. The face wall on the Water Department front on the avenue was rebuilt in its new position at a cost of \$1,684.10. The contracts of both McBride and Whittemore are not yet settled.

The construction of this section completes the connection between Commonwealth avenue in Boston, and Commonwealth avenue in Newton, making a continuous wide avenue extending from the Public Garden in Boston to Charles river on the further boundary of the city of Newton, a distance of 11.14 miles, 5.59 miles of this avenue being in Boston, and 5.55 miles in Newton.

The table showing lengths and areas of paving on accepted streets has been brought up to Feb. 1, 1897.

Street paving has been supervised in all cases where requested. All paving laid on the before-mentioned avenues is included in the quantities given. All granite paving laid on concrete base has been laid with pitch and pebble joints.

Block stone pavement, on a concrete base, laid with pitch and pebble joints, 9,308.9 square yards.

Block stone pavement, on a gravel base, laid with pitch and pebble joints, 5,752 square yards.

Block stone pavement, on a gravel base, laid with gravel joints, 29,046.7 square yards.

Trinidad sheet asphalt, with a binder course of asphaltic cement concrete on an American cement concrete base, 24,782.76 square yards, at a cost of \$2.90 per square yard for large areas, and \$3 per square yard for small areas, not including the preparation of the roadbed.

Sicilian rock asphalt on an American cement concrete base, 26,717.2 square yards, at an average cost of about \$2.90 per

square yard for large areas, and \$3. per square yard for small areas, not including the preparation of the roadbed.

Edgestones set, 107,833 linear feet; gutter paving laid and relaid, 44,823.3 square yards; brick sidewalks laid, 49,314.2 square yards; gravel sidewalks constructed, 43,888.3 square yards; flagging crosswalks laid, 6,044.16 square yards.

All asphalt paving is laid with a maintenance guarantee for five years.

**Acton street**, Washington street to Bradford street, was paved with  $2\frac{1}{2}$  inches of Sicilian rock asphalt, on a 6-inch American cement concrete base, by the Boston Asphalt Company. The roadway was subgraded, edgestones reset, brick sidewalks and flagging crosswalks relaid by the Street Department. The former surface was macadam, with cobble-stone gutters. One new catch-basin was built on Bradford street, and one square granite catch-basin frame was removed and a cast-iron D frame substituted.

**Battery-march street**, Milk street to Liberty square, was paved with 2 inches of Trinidad lake asphalt, with  $1\frac{1}{2}$ -inch bituminous concrete binder, on a 6-inch American cement concrete base, by the Barber Asphalt Paving Company. The old pavement was removed and the roadway subgraded by the Paving Division. Edgestones were reset, brick sidewalks and flagging crosswalks relaid by D. J. Kelley. Two square granite catch-basin frames were removed and cast-iron D frames substituted. Former pavement, old granite blocks.

**Beach street**, Washington street, across Harrison avenue, was paved with large granite blocks on a 6-inch American cement concrete base, with pitch and pebble joints, including tracks of the West End Street Railway Company. The old pavement was barred out and loaded, roadway subgraded, concrete base and paving laid, the edgestones reset, brick sidewalks and flagging crosswalks were relaid by J. B. O'Rourke. The Street Department furnished teams for carting away old paving blocks and surplus material. The West End Street Railway Company, by agreement, paid for the portion within its tracks. Former pavement, old granite blocks.

**Chauncy street**, Summer street to Essex street, was paved with large granite blocks on a 6-inch American cement concrete base, with pitch and pebble joints, including the tracks of the West End Street Railway Company. The old pavement was barred out and loaded, roadways graded, concrete base and paving laid, edgestones reset, brick sidewalks and flagging crosswalks relaid by the Metropolitan Construction Company. The Street Department furnished teams for carting away old granite blocks and surplus material. The West End Street Railway Company, by agreement, paid for the portion within its tracks. Former pavement, old granite blocks.

**Corning street**, Shawmut avenue to Washington street, was resurfaced with Trinidad lake asphalt by the Barber Asphalt

Paving Company. This work was done by the burning process, which consists in heating the old surface of the asphalt, scraping off the dead asphalt, and applying a new wearing surface. The price paid for this work was \$2. per square yard.

**Columbus avenue**, Massachusetts avenue to Northampton street, was paved by the Barber Asphalt Paving Company with 2 inches of Trinidad lake asphalt, with  $1\frac{1}{2}$  inches bituminous concrete binder, on a 6-inch American cement concrete base. The roadway was subgraded by J. J. Sullivan; edgestones were reset, brick sidewalks and flagging crosswalks relaid by Philip Doherty. Former surface was macadam with block gutters.

**Devonshire street**, State street to Dock square, was paved with large granite blocks on a 6-inch American cement concrete base, with pitch and pebble joints, including tracks of the West End Street Railway Company. The old pavement was removed and roadway subgraded by the Street Department. Concrete base and paving laid, edgestones reset, brick sidewalks and flagging crosswalks relaid by J. B. O'Rourke. The West End Street Railway Company, by agreement, paid for the portion within its tracks. At the Dock-square end of the street, about 100 square yards were repaved on a gravel base temporarily, so that the Boston Transit Commission might readily make certain gas pipe connections. Former pavement, old granite blocks on a gravel base.

**Hamburg street**, Mystic street to Harrison avenue, was paved with  $2\frac{1}{2}$  inches of Sicilian rock asphalt on a 6-inch American cement concrete base, by the Boston Asphalt Company. The roadway was subgraded, edgestones reset, brick sidewalks and flagging crosswalks relaid, by the Street Department. Former surface was macadam, with cobble gutters. Two square granite catch-basin frames were removed, and cast-iron D frames substituted.

**Hanover street**, Tileston street to Charter street, and across Charter street on the north side, was paved with  $2\frac{1}{2}$  inches of Sicilian rock asphalt on a 6-inch American cement concrete base, by the Boston Asphalt Company. The old pavement was removed and roadway subgraded by the Street Department. Edge-stones were reset, brick sidewalks and flagging crosswalks relaid by H. Gore & Co. One square granite catch-basin frame was removed and a cast-iron D frame substituted. Former pavement was old granite blocks on a gravel base.

**K street**, East Sixth street to East Eighth street, not including tracks of the West End Street Railway Company, was paved with  $2\frac{1}{2}$  inches of Sicilian rock asphalt on a 6-inch American cement concrete base by the Boston Asphalt Company. The roadway was subgraded by the Street Department. Edgestones reset, brick sidewalks and flagging crosswalks relaid by H. Gore & Co. Former surface was macadam with cobble-stone gutters. The laying of the concrete base and asphalt surface was supervised by the Street Department.

**Laconia street**, Washington street to Harrison avenue, was

paved with 2 inches of Trinidad Lake asphalt on  $1\frac{1}{2}$ -inch bituminous concrete binder, on a 6-inch American cement concrete base, by the Barber Asphalt Paving Company. This street was formerly a private way, with brick sidewalks on either side, and a parkway in the centre with two rows of trees; the usual cross section for a street of this width was modified so as to preserve the best of the trees in the northerly row. The roadway was subgraded, edgestones reset, brick sidewalks and flagging crosswalks laid by the Street Department. Two new catch-basins were built.

**Lowell street**, Causeway street to Brighton street (including tracks of the West End Street Railway Company and Union Freight Railroad Company), was paved with large granite blocks on a gravel base and bed, with pitch and pebble joints. The old pavement was removed and the roadway subgraded by the Street Department. Block paving was laid, edgestones reset, brick sidewalks and flagging crosswalks relaid by D. J. Kiley & Co. By agreement, the West End Street Railway Company and the Union Freight Railroad Company paid for the portion within their tracks. Three granite catch-basin frames were removed and cast-iron D frames substituted. Former pavement, old granite blocks on a gravel base.

**Meander street**, Malden street to East Dedham street, was paved with  $2\frac{1}{2}$  inches of Sicilian rock asphalt on a 6-inch American cement concrete base, by the Boston Asphalt Company. The roadway was subgraded, edgestones reset, brick sidewalks and flagging crosswalks relaid by the Street Department. Two square granite catch-basin frames were removed and cast-iron D frames substituted. Former pavement, cobble stones on gravel base.

**Milk street**, Oliver street to India street, was paved with large granite blocks on a 6-inch American cement concrete base. The old pavement was removed and roadway subgraded by the Street Department. Concrete base and paving was laid, edgestones reset, brick sidewalks and flagging crosswalks relaid by Jones & Meehan. Four square granite catch-basin frames were removed and cast-iron D frames substituted. Former pavement, old granite blocks on a gravel base.

**Mystic street**, Malden street to East Brookline street, was paved with  $2\frac{1}{2}$  inches of Sicilian rock asphalt, on a 6-inch American cement concrete base by the Boston Asphalt Company. The old pavement was removed, roadway subgraded, edgestones reset, brick sidewalks and flagging crosswalks relaid by the Paving Division. Four new catch-basins were built. Former pavement was 12-inch square granite blocks on gravel base, between Malden and East Canton streets, and macadam between East Canton and East Brookline streets.

**North street**, Merchants row to Blackstone street, was paved with large granite blocks on a 6-inch American cement concrete base, with pitch and pebble joints. The old pavement was barred out and loaded, roadway subgraded, concrete base and paving laid, edgestones reset, brick sidewalks and flagging crosswalks

re-laid by the Metropolitan Construction Company. The Street Department furnished teams for carting away old blocks and surplus excavation. Two granite catch-basin frames were removed and cast-iron D frames substituted. Former pavement, old granite blocks on a gravel base.

**Norwich street**, Mystic street to Meander street, was paved with  $2\frac{1}{2}$  inches of Sicilian rock asphalt on a 6-inch American cement concrete base by the Boston Asphalt Company. The old pavement was removed and roadway subgraded, edgestones reset, and brick sidewalks re-laid by the Street Department. Two square granite catch-basin frames were removed and cast-iron D frames substituted. Former pavement, cobble stones on gravel base.

**Ohio street**, Washington street to Shawmut avenue, was paved with  $2\frac{1}{2}$  inches of Sicilian rock asphalt on a 6-inch American cement concrete base by the Boston Asphalt Company. The old pavement was removed and roadway subgraded, edgestones reset, brick sidewalks and flagging crosswalks re-laid by the Street Department. Former pavement, old granite blocks on gravel base.

**Pine street**, Washington street to Harrison avenue, was paved with 2 inches of Trinidad Lake asphalt, with  $1\frac{1}{2}$  inches bituminous concrete binder on a 6-inch American cement concrete base by the Barber Asphalt Paving Company. The roadways were subgraded, edgestones reset, brick sidewalks and flagging crosswalks re-laid by the Street Department. One new catch-basin was built, and one square granite catch basin frame was removed and a cast-iron D frame substituted. Former pavement was macadam with block gutters.

**St. Martin street**, Bunker Hill street to Medford street, is about 533 feet long, with a difference in level between the above-named streets of 55 feet; from Medford street it rises at the rate of 14.34 feet per 100 for 170 feet; from this point five flights of artificial stone steps and platforms, 61 feet long and rising 25.8 feet, were built by Simpson Bros., at a cost of \$2,811.20. Iron hand rails and fences were built by G. T. McLauthlin & Co., at a cost of \$310. The excavation was made and foundations prepared by the Street Department. The portion of the street 170 feet from Medford street is to be constructed with a macadam roadway, granite block gutters, edgestones and brick sidewalks. The work of constructing the street was not very far advanced at the end of the working season.

**Taylor street**, Dwight street to Milford street, was paved with Sicilian rock asphalt on the existing concrete base, by the Boston Asphalt Company. Two granite catch-basin frames were removed and cast-iron D frames substituted. Former pavement was Trinidad lake asphalt. The laying of the asphalt was supervised by the Street Department.

**Water street**, Liberty square to Broad street, was paved with 2 inches Trinidad Lake asphalt, with  $1\frac{1}{2}$  inches bituminous

concrete binder, on a 6-inch American cement concrete base by the Barber Asphalt Paving Company. The old pavement was removed and roadway subgraded by the Street Department. Edgestones reset, brick sidewalks and flagging crosswalks relaid by D. J. Kiley. Former pavement, old granite blocks on a gravel base.

**Winter street**, Tremont street to Washington street, was paved with special cut granite blocks on a 6-inch American cement concrete base, with pitch and pebble joints. The old pavement was removed and roadway subgraded by the Street Department. Concrete base and paving laid, edgestones reset, brick sidewalks and flagging crosswalks relaid by H. Gore & Co. Former pavement, old granite blocks on a gravel base.

#### NEW STREETS.

The following streets were constructed under chapter 323 of the Acts of the Legislature of Massachusetts of 1891, and Acts in amendment thereof or in addition thereto:—

**Abbotsford street**, Walnut avenue to Harold street, is about 599 feet long. The contract for constructing the surface of this street was awarded to Quimby & Ferguson. Work was begun June 16, 1896, and completed Aug. 29, 1896, at a total cost of \$1,864.03. It is a 6-inch macadam road with gravel sidewalks. Crushed stone, gutter blocks and edgestones were furnished by the city and hauled to the site of the work by the contractors. Flagging for crosswalks was furnished by the contractors.

**Audubon road**, Beacon street across Ivy street, is about 315 feet long. The contract for constructing the surface of this street was awarded to William Scollans. Work was begun June 29, 1896, and completed Sept. 10, 1896, at a total cost of \$5,813.83. This street is 100 feet wide; it has a 60 foot roadway, two brick sidewalks 10 feet wide, and a planting space on either side between the sidewalk and roadway. The roadway is Telford macadam (8 inches and 4 inches respectively) with granite block gutters. Telford stone, crushed stone, edgestone and gutter blocks were furnished by the city and hauled to the site of the work by the contractor. Bricks, loam and flagging for crosswalks were furnished by the contractor.

**Bay State road**, Sherborn street to Granby street, is about 795 feet long. The contract for constructing the surface of this street was awarded to Quimby & Ferguson. Work was begun May 4, 1896, and completed Sept. 11, 1896, at a cost of \$3,749.02. It is a 6-inch macadam road with gravel sidewalks. Crushed stone and edgestones were furnished by the city and hauled to the site of the work by the contractor. Gutter blocks and flagging for crosswalks were furnished by the contractor.

**Boylston street extension**, Boylston road to Brookline avenue, is about 2,070 feet long. The work of filling to sub-

grade was begun in 1894, and completed on April 27, 1895, at a cost of \$47,819.37. The contractor was John O'Brien. A contract for constructing the surface of this street was awarded to Neil McBride. Work was begun Oct. 20, 1896, and is still incomplete. It is a 6-inch macadam road, with gravel sidewalks. Crushed stone and edgestones are furnished by the city and hauled to the site of the work by the contractor. Gutter blocks are furnished and delivered on the street by the city. Flagging for crosswalks was furnished by the contractor. Before the cold weather stopped work the contractor had set all the edgestones, paved the gutters and placed nearly all the crushed stone. During the winter, as the weather permitted, he has been hauling in gravel to fill out the slopes.

**Clinton street**, Fulton street to Commercial street, is about 187 feet long. This street was widened 30 feet on the northerly side; it is now 70 feet wide. For taking down a building at the corner of Fulton street and removing old area and party walls, the sum of \$643.05 was paid to A. A. Elston & Co. The old pavement was barred out and roadway subgraded by the Street Department. The order for construction required granite block paving on a concrete base, with pitch joints, but, as it is intended to build part of an outfall sewer in the street, the roadway was paved temporarily with granite blocks on a gravel base. The granite block paving was laid, edgestones set, brick sidewalks and flagging crosswalks relaid by Dennis J. Kiley & Co.

**Fenelon street**, Washington street to Merrill street, is about 324 feet long. The contract for constructing the surface of this street was awarded to Daniel E. Lynch. Work was begun Oct. 19, 1896, and was continued as long as the weather permitted; it is very nearly completed. The street has a 6-inch macadam road, with gravel sidewalks. Crushed stone, gutter blocks and edgestones were furnished by the city, and hauled to the site of the work by the contractor. Flagging for crosswalks was furnished by the contractor.

**Geneva avenue**, Westville street to Dorchester avenue, is about 2,137 feet long. The contract for constructing the surface of this street was awarded to Finneran & O'Hearn. Work was commenced Nov. 13, 1896, and was continued as long as the weather permitted. It is a 6-inch macadam road, with gravel sidewalks. Crushed stone and edgestones are furnished by the city, and hauled to the site of the work by the contractor; gutter blocks are furnished and delivered on the street by the city; flagging for crosswalks is furnished by the contractor. The street is practically finished for a distance of about 600 feet.

**Granby street**, Commonwealth avenue to Charles river, is about 439 feet long. The contract for constructing the surface of this street was awarded to Quimby & Ferguson. Work was begun May 8, 1896, and completed Sept. 11, 1896, at a cost of \$2,203.22. It is a 6-inch macadam road, with gravel sidewalks. Crushed stone and edgestones were furnished by the city, and

hauled to the site of the work by the contractor; gutter blocks and flagging for crosswalks were furnished by the contractor. A contract for furnishing and setting a cap stone on the sea wall at Charles river was awarded to Trumbull & Ryan; capstone, 64 feet long, cost \$320.00. Another contract for furnishing and erecting an iron fence on the above capstone was awarded George T. McLauthlin & Co. for \$110.00.

**Greenbrier street**, Bowdoin street to Bloomfield street, is about 700 feet long. The contract for constructing the surface of this street was awarded to Quimby & Ferguson. Work was begun June 16, 1896, and completed Oct. 8, 1896, at a cost of \$2,797.05. It is a 6-inch macadam road with gravel sidewalks. Crushed stone and edgestones were furnished by the city and hauled to the site of the work by the contractor; gutter blocks and flagging for crosswalks were furnished by the contractor.

**Josephine street**, Geneva avenue to Ditson street, is about 627 feet long. The contract for constructing the surface of this street was awarded to J. J. Nawn. Work was begun June 4, 1896, and completed Oct. 16, 1896, at a cost of \$1,888.66. It is a 4-inch macadam road. Gravel sidewalks were ordered to be built, but on account of a petition from the abutters, a granolithic sidewalk and edgestone was laid, except in front of two lots. Crushed stone and edgestones were furnished by the city and hauled to the site of the work by the contractor. Gutter blocks and flagging for crosswalks were furnished by the contractor.

**Lauriat avenue**, Blue Hill avenue to Tucker street, is about 3,160 feet long. The contract for constructing the surface of this street was awarded to Doherty & Connors; work was begun Oct. 5, 1896, and was continued as long as the weather permitted. It is a 6-inch macadam road with gravel sidewalks. Crushed stone, gutter blocks and edgestones are furnished by the city and hauled to the site of the work by the contractor; flagging for crosswalks is furnished by the contractor. This street is practically finished for a distance of about 1,950 feet.

**Morse street**, Washington street to Bowdoin avenue, is about 223 feet long. The contract for constructing the surface of this street was awarded to Daniel E. Lynch. Work was begun Oct. 12, 1896, and was continued as long as the weather permitted; it is nearly completed. This street has a 6-inch macadam road with gravel sidewalks. Crushed stone, gutter blocks and edgestones were furnished by the city and hauled to the site of the work by the contractor; flagging for crosswalks was furnished by the contractor.

**St. Alphonsus street**, Tremont street to Calumet street, is about 720 feet long. The contract for constructing the surface of this street was awarded to Quimby & Ferguson. Work was begun June 24, 1896, and completed Oct. 10, 1896, at a cost of \$3,608.62. It is a 6-inch macadam road with gravel sidewalks. Crushed stone, gutter blocks and edgestones were furnished by

the city and hauled to the site of the work by the contractor; flagging for crosswalks was furnished by the contractor. The above contract includes building about 187 feet of retaining-wall, average height about 7.5 feet.

**Wilder street**, Washington street to Geneva avenue, is about 539 feet long. The contract for constructing the surface of this street was awarded to Finneran & O'Hearn. Work was begun Oct. 5, 1896, and was practically finished Nov. 28, 1896; a small amount of work remains to be done to finish the surface of the roadway. It is a 6-inch macadam roadway. Gravel sidewalks were ordered to be built, but at the request of the owner of abutting land they were omitted, so as to allow him to lay granolithic next season. Crushed stone, gutter blocks and edge-stones were furnished by the city and hauled to the site of the work by the contractor; flagging for crosswalks was furnished by the contractor.

Streets were filled to subgrade, by the Metropolitan Construction Company, as follows:—

**Norway street**, from Massachusetts avenue to Parker street, 2,541 cubic yards, at 50 cents = \$1,270.50.

**Ruggles street**, from Parker street to Back Bay Fens, 7,496 cubic yards, at 65 cents = \$4,872.40

**Turner street**, from Haviland to Astor streets, 2,380 cubic yards, at 50 cents = \$1,190.

**Vancouver street**, from Huntington avenue to Ruggles street, 1,444.6 cubic yards, at 65 cents = \$938.99.

**Peterborough street**, Boylston road to Audubon road, is about 1,833 feet long. A contract for filling this street to sub-grade was made with the Boston & Albany Railroad Company, on Oct. 30, 1896, at the rate of 51 cents per cubic yard measured in the cut. Work was begun under this contract Dec. 2, 1896.

#### GRADING STREET RAILWAY TRACKS.

The grades for tracks in the following streets have been determined. On streets marked \* the surveys were made and levels taken by the companies.

#### (*West End Street Railway.*)

**Alford street**, from Malden Bridge to the Everett line.

**Amory street**, Roxbury, from Centre street to the car house.

**Beach street**, from Washington street across Harrison avenue.

**Beacon street**, from Massachusetts avenue to Deerfield street.

**Blue Hill Avenue**, from Washington street to 1,200 feet south of Back street.

**Centre street**, Roxbury, at Linwood street.

**Centre street**, Roxbury, from Columbus-avenue extension to near Wise street.

**Chauncy street**, from Summer street to Essex street.

\* **Chestnut Hill avenue**, from Commonwealth avenue to Sutherland road.

**Columbus avenue**, from Massachusetts avenue to Roxbury Crossing.

**Columbus avenue**, from West Walnut Park to Washington street.

**Commonwealth-avenue extension**, from Chestnut Hill avenue to the Newton line.

**Devonshire street**, from State street to Dock square.

**Dorchester avenue**, from West First street to West Seventh street.

**East Eighth street**, from Dorchester street to Mercer street.

**East Sixth street**, from L street to N street.

**Essex street**, from Washington street to Harrison avenue.

**Hanover street**, from Tileston street to Charter street.

**Huntington avenue**, from Dartmouth street to the Brookline line.

**K street**, from East Sixth street to East Eighth street.

**Main street, Charlestown**, from City square to Pleasant street.

**Main street, Charlestown**, from Wood street to School street.

\* **Market street, Brighton**, from Western avenue to Washington street.

\* **Massachusetts avenue**, from Boylston street to Huntington avenue.

\* **Roxbury street**, from Pynchon street to Eliot square.

**Sumner street, East Boston**, from Orleans street to Webster street.

**Tremont street**, from Columbus avenue to Vernon street.

**Tremont street, Brighton**, from Oak square to Newton line.

**Washington street**, from Elm street to Haymarket square. †

**Washington street, Roxbury**, from Vernon street to Warren street.

\* **Western avenue**, from Charles river in Cambridge to Market street.

**West Fourth street**, at Dorchester avenue.

(*West Roxbury and Roslindale Street Railway Company.*)

\* **Beech street**, from Centre street to Belgrave avenue.

\* **Brandon street**, from Amherst street to South street.

\* **Centre street**, from Beech street to Alarie street.

\* **South street**, from Brandon street to Washington street.

\* **Washington street**, from Forest Hill station to the Dedham line.

Total length of single track grades, 29.4 miles.

Surveys and plans were made for work upon the following streets and grades and lines given. The work of construction was supervised by the Street Department:—

**Albany street**, from Massachusetts avenue toward East Concord street, was repaved with granite blocks on a gravel base, on account of the paving of Massachusetts avenue, between Albany street and Swett street, and raising it to the established grade. The old paving was barred out and bed prepared by the Street Department. The roadway was repaved, edgestones reset, brick sidewalks and flagging crosswalks relaid by Doherty & Connors.

**Arlington street**, from Boylston street to Marlborough street, was resurfaced with macadam by the Street Department. Gutters relaid, edgestones reset, brick sidewalks and flagging crosswalks relaid by James Grant & Co.

**Ashland street**, from Chambers street to Leverett street, was paved with large granite blocks on a gravel base. The old pavement was removed and roadway subgraded by the Street Department. Granite block paving was laid, edgestones reset, brick sidewalks and flagging crosswalks relaid by D. J. Kiley. Former pavement was cobble stones.

**City Hall avenue**, a footway from School street to Court square, was paved with Hastings asphalt blocks on a gravel bed, blocks were laid on their broadest faces by H. Gore & Co. The old pavement was removed, walk subgraded and bed furnished and placed by the Paving Division. Blocks were furnished by H. Gore & Co. Former surface was brick on gravel base.

**Commonwealth avenue**, from Cottage-Farm bridge to Warren street. Lines and grades were given and work measured, east and west of Cottage-Farm bridge and between Harvard avenue and Allston street.

**D street**, from West First street to West Third street, was paved with large granite blocks on a gravel base. The roadway was subgraded by the Paving Division. Granite block paving was laid, edgestones reset, brick sidewalks and flagging crosswalks relaid by H. Gore & Co. Former surface was macadam.

**Dorchester avenue**, from West First street to West Seventh street, was repaved with large granite blocks on a gravel base. The old pavement was removed and roadway subgraded by the Street Department. Granite block paving was laid, edgestones reset, brick sidewalks and flagging crosswalks relaid by H. Gore & Co. Former pavement, old granite blocks on granite base.

**East Eighth street**, from Dorchester street to Mercer street (on southerly side between edgestone and car track), was paved with large granite blocks on a gravel base. The old pavement was removed and roadway subgraded by the Street Department. Granite block paving was laid by H. Gore & Co. Former pavement was old granite blocks on gravel base.

**East Sixth street**, from L street to N street, was paved with large granite blocks on a gravel base. The roadway was sub-

graded in part by the Street Department and in part by H. Gore & Co. Granite block paving was laid, edgestones reset, brick sidewalks and flagging crosswalks relaid by H. Gore & Co. Former surface was macadam with cobble-stone gutters.

**Eustis street**, from Hampden street to Magazine street, was resurfaced with macadam by the Street Department. Cobble-stone gutters were relaid, edgestones reset, and brick sidewalks relaid (including excavation) by C. E. Barnes.

**Massachusetts avenue**, from Albany street to Swett street, was paved with large granite blocks on a gravel base. The roadway was subgraded by the Street Department. Granite block paving was laid, edgestones set and flagging crosswalks laid by Doherty & Connors. Five new catch-basins were built. Former surface was macadam.

**Tremont street**, from Columbus avenue to Prentiss street (on northerly side), was repaved with large granite blocks on a gravel base. The old pavement was removed and roadway subgraded by the Street Department. Granite block paving, brick sidewalks and flagging crosswalks were relaid, and edgestones reset by Jones & Meehan. Former pavement was old granite blocks on gravel base.

#### MISCELLANEOUS WORK.

**Chestnut Hill Reservoir Archway.** Specifications were prepared, and a contract made with W. L. Miller for taking down this archway. All stones were lettered and numbered, and a plan showing such numbering is on file in the office of the City Engineer. Cost of work was \$874.

**Commonwealth-avenue Speedway.** A plan and details for swing-gates for either end of the speedway was made.

**Commonwealth-avenue ledge.** Plans of cross sections of ledge, for measurement of stone removed. This stone was used in the construction of Brighton avenue, Bay State road, Granby, Boylston and other streets; also plan of ledge showing outlines Oct. 1, 1895, and Dec. 5, 1896, and positions of camera when photographs of the face of the ledge were taken Dec. 10 and 11, 1896.

**Boylston street**, from Exeter street to Hereford street. Plan and estimate for fence.

**Hawthorn gravel bank** (Brookline), plan and cross sections of bank for gravel used in filling Columbus-avenue extension and Huntington-avenue widening,

**Livermore gravel bank** (Roxbury), plan and cross sections of bank for gravel used in filling Columbus-avenue extension.

**Ruggles street**, under bridge of Providence Division, New York, New Haven & Hartford R.R. Plans, elevations, sections and details of elevated sidewalk.

Surveys, plans and estimates for improving and paving the following streets have been made:—

**Alford street** (Charlestown), from Malden bridge to the Everett line.

**Essex street**, from South street to Federal street.

**Milk street**, from Pearl street to Kilby street.

**Washington street**, from Marvin street to Warren street.

**Essex-street bridge.** A contract was made Oct. 14, 1896, with William S. Rendle for rebuilding the upper part of this bridge and doing other work in connection therewith. The total cost of the work was \$7,038.95.

**Meridian-street bridge.** Specifications were made for rebuilding the trusses of the draw, and a contract for doing the work was made April 11 with W. H. Ellis & Co.; the timber used in the trusses was furnished by the city. The cost of the contract work was \$2,025.96.

**Winthrop bridge.** The sidewalk and sidewalk bulkhead were rebuilt for about three-quarters of their length, and repairs were made to ten bents of piles; the work was done by J. N. Hayes & Co., and was completed March 10, 1896, at a cost for contract work of \$1,519.92.

**Huntington-avenue bridge.** (Over Boston & Albany R.R.) During the past year the flooring of the bridge has been entirely rebuilt and made to conform to the new grade; parapets were raised and new asphalt sidewalks built. The old girder on the centre line of the westerly sidewalk was moved to the easterly sidewalk and two new plate girders put in under the westerly sidewalk. This change was made necessary because of the new 42-inch water-pipe which was carried across the bridge on the westerly side. The girders were built by the Boston Bridge Works under a contract dated Nov. 9, 1895, and the work of moving the old girder was done by the same company; the total cost being \$2,646.99. The contract for the woodwork and for the changes in stonework was made with W. L. Miller, dated April 11, 1896, and amounted to \$3,097.28. The sidewalks were built by the Boston Asphalt Company, at a cost of \$635.25. The cleaning and painting of the girders was done by the Bridge Division of the Street Department.

**Cottage-Farm bridge.** During the early part of the year the northerly roadway was completed; the 20-inch steel beams being placed in position by A. C. Richmond; the bricks, the skewbacks and concrete being furnished by the city, and put in place by the Metropolitan Construction Co. A Sicilian rock asphalt wearing surface was put on the roadway by the Boston Asphalt Co.

On the completion of the northerly roadway travel was turned on that side of the bridge July 9, and the old wooden bridge and the two iron girders supporting the water and gas pipes were removed.

New parapets and bearing blocks were furnished by the Cape Ann Granite Co., and set in position on the old bridge seats on the southerly section of the bridge.

Slight extensions were made to the easterly end of the north

abutment and middle pier, the work being done by A. C. Richmond.

The 20-inch steel beams were furnished by Page, Newell & Co., and placed in position by A. C. Richmond. The lead coverings for the steel beams were furnished by E. B. Badger & Sons. The bricks, skewbacks and concrete arches between the beams were set by the Metropolitan Construction Co., the materials being furnished by the city. The asphalt surface was put on by the Boston Asphalt Co.

The two iron girders on the easterly side of the bridge, and the sidewalk floor beams connected to them were furnished in place by the Boston Bridge Works.

Granolithic sidewalks were laid on this section of the bridge by Simpson Brothers, of Boston.

A central way between the car tracks,  $13\frac{1}{2}$  feet wide and 5 inches above the roadway was built, upon which are placed two gaspipes and one waterpipe.

Travel was turned over this part of the bridge late in the fall and the bridge is practically completed with the exception of the sidewalk on the northerly section, and the placing of fence rails on the main girders.

#### EAST BOSTON FERRIES.

A report was made Aug. 5, 1896, on the condition of the slips, drops and tanks of the East Boston Ferries.

**South Ferry, Boston side.** Plans and specifications were made for repairing the outer end of the middle pier, and the work was done by W. H. Ellis & Co., under contract dated Oct. 8, 1896, at a cost of \$1,802.15.

**New drops.** A contract was made Sept. 16, 1896, with William McKie, to build three new drops to replace three old ones; the old drops to be the property of the contractor, the tanks and machinery to remain the property of the city. The contract price was \$14,718; they were placed at the northerly landing of the North Ferry, East Boston side; at the northerly landing of the South Ferry, Boston side, and at the southerly landing of the North Ferry, Boston side. These drops were respectively put in use at the following dates: November 23, Dec. 7, 1896, and Jan. 26, 1897.

**New tanks.** Two new tanks were built by J. M. Brooks, and were used under the new drops at the East Boston landing of the North ferry, and at the Boston landing of the South ferry. The contract price was \$3,500.

**Awning at the North Ferry, East Boston.** Plans and specifications were made for an awning over the sidewalk in front of the head-house at the North Ferry, East Boston; the work was done by W. H. Ellis & Co., at a cost for contract work of \$698.64.

Yours respectfully,

WILLIAM JACKSON,

*City Engineer.*

## APPENDIX I.

## REPORT OF THE CHIEF SMOKE INSPECTOR.

28 COURT SQUARE, BOSTON, Feb. 1, 1897.

BENJ. W. WELLS, Esq., *Superintendent of Streets*:

SIR: I herewith submit a report for the year ending Jan. 31, 1897, of the work done under chapter 389, Acts of 1895, entitled, "An Act to Abate the Smoke Nuisance in the city of Boston."

This law has been in operation since July, 1895, and those who have not followed the matter closely are not aware of the progress which has been made by its enforcement. Reforms have been accomplished, particularly in the business section, not alone by the adoption of smoke devices, but by a more careful method of stoking, and in some cases a change of fuel.

If smoke could be abated only by entailing an added expense, it would no doubt be found difficult to enforce the law; but a device used for the suppression of smoke, not only abates the smoke nuisance, but invariably shows an absolute economy of fuel, as it promotes combustion, and prevents before they can be utilized the escape of valuable gases for heating purposes to produce steam.

Following the passage of this law in 1895, a large number of owners or representatives of boiler plants who were likely to become amenable to the law, were waited upon and informed that this department intended to strictly enforce the regulations authorized by its provisions. The enactment clause of the law relating to the emission of smoke for more than five minutes being particularly called to their attention.

The observers, of which there are two, were instructed to keep a close watch, particularly in the business section, and to take short observations of 1, 2 and 3 firings. The necessity for a constant watch in the business section may be accounted for by the fact, that even the emission of a small quantity of smoke, due to various causes, destroys, for the time-being, valuable property.

When a chimney was found emitting an unwarranted amount of smoke the owner's attention was at once called to it, and immediate action suggested.

Some of these required time and patience, particularly where devices were attached, owing to the delays occasioned in the

selection of a proper smoke preventer. Generally we have found a disposition to abate the existing evil.

These short observations have been taken by the observers as they go over the several districts from day to day, and serve to keep the office informed of the condition of the various plants throughout the city.

Other observations have been made at the request of boiler-plant owners, who, having equipped their plant with a smoke consuming device, desired the city to inform them if the same was acceptable and complying with the law. These latter observations, lasting from eight to nine hours, with reports, are on file.

When a request for inspection is received from a boiler-plant owner, arrangements are made to take two observations, averaging from eight to nine hours, so as to cover the actual working time of the boilers.

The first observation is taken without the knowledge of any one connected with the plant, to show the results when the plant is being run under every day conditions. Another observation is later taken, the owners being previously notified; this affords them an opportunity to be exceedingly careful in their stoking and manipulation of the device.

It would seem that with a knowledge of the fact that the chimney is being watched, and with the stoker using his best efforts to show the best possible results, that this would obtain in this latter set of observations; but it is frequently the case, that the observation, taken without their knowledge, shows the better results.

These observations show the interval in minutes and seconds of the various grades of smoke; also the interval of clear stack. This is followed by a summary, showing the total time of the observation, total time of the various grades of smoke and also the percentage. A report accompanies these observations showing the number of boilers connected with the plant, the amount and nature of the work exacted from the same, the coal consumption, etc., to complete which takes from five to seven days.

A better idea may be obtained from the table herewith given. This shows an observation taken without the knowledge of any one connected with the plant, the boilers being equipped with a smoke preventer. A summary is also given of the observation taken with their knowledge on the same plant.

## STREET DEPARTMENT — SMOKE INSPECTION. 477

TIME OF FIRING.	Dark or Thick Gray.	SMOKE.						Clear Stack.	Interval.
		Interval.	Light.	Interval.	Very Light.	Interval.	Clear Stack.		
8.05.00.....		...	8.05.30	.30	8.05.50	.20	8.05.50	.30	
8.06.20.....	8.06.25	.05	8.07.00	.35	8.07.40	.40			
8.07.40.....	8.08.00	.20	8.08.20	.20	8.08.50	.30	8.08.50	4.40	
8.13.30.....	8.13.40	.10	8.13.55	.15	8.14.40	.45	8.14.40	22.00	
8.36.40.....			8.37.30	.50					
8.37.30.....	8.37.40	.10	8.38.10	.30	8.39.00	.50	8.39.00	9.00	
8.48.00.....					8.48.30	.30	8.48.30	6.40	
8.55.10.....			8.55.50	.40	8.56.00	.10	8.56.00	4.30	
9.00.30.....			9.01.10	.40	9.01.30	.20	9.01.30	3.00	
9.04.30.....	9.04.50	.20	9.05.20	.30	9.05.40	.20	9.05.40	17.20	
9.23.00.....					9.23.40	.40	9.23.40	19.20	
9.43.00.....			9.43.30	.30	9.43.40	.10	9.43.40	.20	
9.44.00.....					9.44.20	.20	9.44.20	.20	
9.44.40.....			9.45.10	.30	9.45.30	.20	9.45.30	.30	
9.46.00.....			9.46.10	.10	9.46.20	.10	9.46.20	4.10	
9.50.30.....					9.51.10	.40	9.51.10	1.50	
9.53.00.....			9.53.20	.20	9.53.30	.10	9.53.30	5.10	
9.58.40.....	9.58.50	.10	9.59.20	.30	9.59.30	.10	9.59.30	6.40	
10.06.10.....	10.06.20	.10	10.07.10	.50	10.07.30	.20	10.07.30	18.30	
10.26.00.....			10.27.00	1.00	10.27.30	.30	10.27.30	1.30	
10.29.00.....					10.29.10	.30	10.29.10	2.30	
10.31.40.....			10.32.00	.20	10.38.20	.20	10.38.20	5.00	
10.37.20.....	10.37.30	.10	10.38.00	.30	10.38.20	.20	10.38.20	1.20	
10.39.40.....			10.40.00	.20	10.40.30	.30	10.40.30	3.50	
10.44.20.....			10.44.40	.20	10.44.50	.10	10.44.50	3.40	
10.48.30.....			10.49.00	.30	10.49.10	.10	10.49.10	3.50	
10.53.00.....			10.53.30	.30	10.58.50	.20	10.53.50	1.20	
10.55.10.....	10.55.20	.10	10.55.40	.20	10.56.00	.20	10.56.00	16.20	
11.12.20.....			11.12.40	.20	11.12.50	.10	11.12.50	5.40	
11.18.30.....					11.18.50	.20	11.18.50	1.40	
11.20.30.....			11.20.50	.20	11.21.10	.20	11.21.10	8.20	
11.29.30.....	11.29.50	.20	11.30.10	.20	11.30.20	.10	11.30.20	1.50	
11.32.10.....	11.32.20	.10	11.32.30	.10	11.32.50	.20	11.32.50	15.10	
11.48.00.....	11.48.20	.20	11.48.40	.20	11.49.30	.50	11.49.30	4.30	
11.54.00.....			11.54.20	.20					
11.54.20.....	11.54.30	.10			11.54.50	.20	11.54.50	.30	
11.55.20.....	11.55.40	.20			11.56.00	.20	11.56.00	4.20	
12.00.20.....	12.00.30	1.00	12.00.50	.20	12.01.00	.10	12.01.00	17.30	
12.18.30.....			12.18.50	.20	12.19.20	.30	12.19.20	.40	
12.20.00.....	12.20.10	.10	12.20.30	.20	12.21.00	.30	12.21.00	3.50	
12.24.50.....	12.25.10	.20	12.25.30	.20	12.26.00	.30	12.26.00	5.30	
12.31.30.....			12.32.10	.40	12.32.45	.35	12.32.45	.30	
12.33.15.....			12.34.00	.45	12.34.20	.20			
12.34.20.....			12.34.30	.10	12.35.00	.30	12.35.00	.10	
12.35.10.....	12.35.20	.10	12.35.40	.20	12.36.00	.20	12.36.00	.55	
12.36.55.....	12.37.05	.10	12.37.15	.10	12.37.20	.05	12.37.20	2.20	
12.39.40.....	12.40.00	.20	12.40.20	.20	12.40.30	.10	12.40.30	2.00	
12.42.30.....	12.43.00	.30	12.44.00	1.00	12.44.10	.10	12.44.10	.55	
12.45.05.....	12.45.15	.10	12.45.20	.05	12.45.35	.15	12.45.35	2.55	
12.48.30.....			12.49.00	.30	12.49.15	.15	12.49.15	1.15	
12.50.30.....	12.50.45	.15	12.51.00	.15	12.51.10	.10	12.51.10	.35	
12.51.45.....	12.52.20	.35	12.52.30	.10	12.52.40	.10	12.52.40	1.05	
12.53.45.....	12.54.10	.25	12.54.20	.10	12.54.25	.05	12.54.25	15.35	
1.10.00.....	1.10.20	.20	1.10.30	.10	1.10.40	.10	1.10.40	1.50	
1.12.30.....	1.12.45	.15	1.13.10	.25	1.13.20	.10	1.13.20	.40	
1.14.00.....	1.14.20	.20	1.15.00	.40	1.15.15	.15	1.15.15	6.05	
1.21.20.....			1.21.30	.10	1.22.00	.30	1.22.00	8.05	
1.30.05.....	1.30.55	.50	1.32.00	1.05	1.32.30	.30	1.32.30	.15	
1.32.45.....			1.33.30	.45	1.33.45	.15	1.33.45	7.40	
1.41.25.....			1.41.50	.25	1.42.30	.40	1.42.30	2.30	
1.45.00.....			1.45.30	.30	1.46.00	.30	1.46.00	2.30	
1.48.30.....			1.49.10	.40	1.49.30	.20	1.49.30	1.90	
1.50.30.....	1.51.20	.50	1.52.20	1.00	1.53.00	.40	1.53.00	1.30	
1.54.30.....			1.55.00	.30	1.55.15	.45			
1.55.15.....	1.55.50	.35	1.56.45	.55	1.57.00	.15	1.57.00	4.55	
2.01.55.....	2.02.10	.15	2.02.40	.30	2.03.00	.20	2.03.00	5.15	
2.08.15.....			2.08.45	.30	2.09.00	.15	2.09.00	1.10	
2.10.10.....	2.10.55	.45	2.11.20	.25	2.11.45	.25	2.11.45	9.35	
2.21.20.....			2.21.35	.15	2.22.00	.25	2.22.00	1.45	

TIME OF FIRING.	SMOKE.						Clear Stack. Interval.	
	Dark or Thick Gray. Interval.	Light. Interval.	Interval.	Very Light. Interval.	Interval.	Interval.		
2.23.45.....		2.24.10	.25	2.24.20	.10	2.24.20	3.10	
2.27.30.....		2.28.20	.50	2.28.30	.10	2.28.30	2.35	
2.31.05.....	2.31.10	.05	2.31.20	.10	2.32.00	.40	2.32.00	13.20
2.45.20.....				2.46.10	.50	2.46.10	.10	
2.46.20.....	2.46.25	.05	2.46.40	.15	2.46.45	.05	2.46.45	9.25
2.56.10.....	2.46.50	.40	2.57.10	.20	2.57.20	.10	2.57.20	.50
2.58.10.....			2.58.40	.30	2.59.10	.30		
2.59.10.....	2.59.25	.15	2.59.35	.10	2.59.45	.10	2.59.45	1.45
3.01.30.....			3.01.40	.10	3.02.00	.20	3.02.00	2.50
3.04.50.....	3.04.55	.05	3.05.20	.25	3.05.30	.10	3.05.30	8.30
3.14.00.....			3.14.30	.30				
3.14.30.....	3.14.45	.15	3.14.50	.05	3.15.00	.10	3.15.00	1.05
3.16.05.....			3.16.30	.25	3.16.40	.10	3.16.40	5.50
3.22.30.....			3.22.50	.20	3.23.10	.20	3.23.10	.30
3.23.40.....	3.23.50	.10	3.24.00	.10	3.24.10	.10	3.24.10	.20
3.24.30.....	3.25.00	.30	3.25.10	.10				
3.25.10.....	3.26.15	1.05	3.26.30	.15	3.26.45	.15	3.26.45	2.40
3.29.25.....	3.29.40	.15	3.29.55	.15	3.30.10	.15	3.30.10	2.40
3.32.50.....	3.33.00	.10	3.33.10	.10	3.33.30	.20	3.33.30	2.40
3.36.10.....			3.36.40	.30	3.36.50	.10	3.36.50	3.10
3.40.00.....	3.40.10	.10	3.40.30	.20	3.40.45	.15	3.40.45	2.15
3.43.00.....	3.43.10	.10	3.43.20	.10	3.43.30	.10	3.43.30	10.50
3.54.20.....			3.55.00	.40	3.55.15	.15	3.55.15	8.15
4.03.30.....	4.03.40	.10	4.03.45	.05	4.03.50	.05	4.03.50	14.20
4.18.10.....			4.18.55	.45	4.19.10	.15	4.19.10	5.20
4.24.30.....			4.25.10	.40	4.25.50	.40	4.25.50	3.30
4.29.20.....	4.29.25	.05	4.29.40	.15	4.29.50	.10	4.29.50	4.15
4.34.05.....			4.34.20	.15				
4.34.20.....	4.34.35	.15	4.34.45	.10	4.35.10	.25	4.35.10	1.45
4.36.55.....	4.37.20	.25	4.37.45	.25	4.38.10	.25	4.38.10	.20
4.38.30.....	4.39.05	.35	4.39.30	.25	4.39.45	.15	4.39.45	2.35
4.42.20.....			4.42.45	.25	4.43.10	.25	4.43.10	
	15.55		38.50		32.10			7.11.15

*Summary.*

	Dark or Thick Gray.	Light.	Very Light.	Clear.
Time .....	m. s. 15 55	m. s. 38 50	m. s. 32 10	h. m. s. 7 11 15
Per cent.....	3.1	7.5	6.2	83.2

Total time of observation . . . . .		H. 8	M. 38	S. 10
" time of smoke . . . . .		1	26	55
" smoke . . . . .			16.8 per cent	
Dark or thick gray smoke . . . . .			3.1	"
Total number of firings, etc. . . . .			101	
Average time between each firing . . . . .			5 minutes.	

*Summary of Observation taken with their Knowledge.*

	Dark or Thick Gray.	Light.	Very Light.	Clear.
	m. s.	m. s.	m. s.	h. m. s.
Time .....	20 55	47 15	38 50	6 51 50
Per cent.....	4.0	9.1	7.5	79.4

	H.	M.	S.
Total time of observation . . . . .	8	38	50
“ time of smoke . . . . .	1	47	0
“ smoke . . . . .		20.6	per cent.
Dark or thick gray smoke . . . . .	4.		“
Total number of firings, etc. . . . .		135	
Average time between each firing . . . . .			4 minutes.

I had, during the past two years, occasion to call and see the owners or managers of a large number of boiler plants throughout the city, and while it may seem strange, yet it is a fact, that quite a large number know little or nothing concerning their boiler plant, depending almost entirely on their engineer; and the engineer seeing the necessity for a change which would be beneficial, makes recommendations which are immediately set aside, if involving any expense.

When owners of steam plants fully realize that the maintaining of a smoke nuisance entails an actual money loss, then, and only then, will suggestions from those in charge be considered.

There are a number of boiler plants in this city where the boilers at times are being worked far beyond their rated capacity, and emitting smoke to the detriment of their neighbors. These parties do little, if any, damage to their own property, but the smoke and soot are entering the doors and windows of neighbors, destroying goods, the value of which would aggregate many thousands of dollars.

While these plants are not flagrantly violating the law, and the department has frequently called their attention to the necessity of a change, and as their neighbors refuse to complain, the owner as a rule is unwilling to go to any expense, especially if he sees a chimney near by, that in his judgment smokes worse.

The engineer is well aware of these conditions, but finds himself handicapped, on account of refusal of owner to properly equip the plant.

When a recommendation is received from an engineer to equip a plant with a device such as will increase the boiler capacity, the first cost is in most cases considered excessive; but if owners would only estimate the financial returns, aside from the knowledge, that as public-spirited citizens each had done his

share, not alone towards complying with the law, but also towards reducing his smoke emission to a minimum, better general results would follow in the ready adoption of it.

Cases have been found where the smoke nuisance is due to bad or careless stoking; it is essential therefore, that the best class of stokers be employed, as a poor fireman will be found not only dangerous, but also very expensive.

Up to the present time it has been the established policy of this office not to recommend devices. At the same time, the owners of plants are entitled to our advice and experience to protect themselves against the adoption of worthless devices. For this reason the endeavor is made to keep informed in regard to all devices, not alone as to temporary results so far as smoke is concerned, but also as to the permanency of the same.

In the selection of a smoke preventer, the conditions of the plant to be equipped and the type of boiler to be used, must be carefully considered, and any capable engineer can solve the problem after an examination of the various types, a list of which is readily furnished on application, and the advice given to examine those in operation first of all. In general, each one must decide what his peculiar local conditions call for.

Among those who have equipped their plant with smoke preventers during the past year may be mentioned the following:—

Boston "Herald," Washington street.  
Jordan, Marsh & Co., Washington street.  
Shepard, Norwell & Co., Winter street.  
Hathaway Building, Atlantic avenue.  
Carter Building, Water street.  
New England Building, Summer street.  
Church Green Electric Lighting Co., Sullivan place.  
C. A. Millen Co., Charlestown street.

The New York, New Haven & Hartford railroad have adopted the use of smokeless coal at the repair shops at the foot of Sarsfield street, and also at their steam-heating plants on Rogers avenue. Several smaller plants have adopted the use of hard coal, while many others are using a mixture of screenings with soft coal, all with good results.

#### COAL IMPORTATIONS.

Some attention has been given to the grades of coal commonly in use, and, as it seemed to be doubtful if sulphurous mines could be safely utilized in the city limits, some inquiry was made as to how far Dominion coal was being adopted.

The following table shows the number of tons and value of importations of Nova Scotia coal recorded at the port of Boston for the year ending Jan. 31, 1897, the main portion of which is used outside the city limits:—

MONTH.	Tons.	Value.
February.....	1,670	\$3,006
March.....	—	—
April.....	2,126	3,827
May.....	2,800	5,040
June.....	4,333	7,779
July.....	1,188	2,138
August.....	7,877	14,181
September.....	10,841	19,514
October.....	8,066	13,105
November.....	10,793	17,090
December.....	2,064	3,092
January, 1897.....	4,890	8,519
Total.....	56,648	\$97,311

## BOILER APPLICATIONS.

With a view of providing against future smoke nuisances the department found it necessary to insist that all new boilers erected in the city be properly equipped, if soft coal was to be used. This was done with the co-operation of the building department, and during the past year 331 applications have been received and disposed of as follows:—

Hot-water heaters, furnaces, etc.	.	.	.	.	.	.	245
Signed to use hard coal	.	.	.	.	.	.	35
Adopted smoke devices	.	.	.	.	.	.	31
Screenings and soft coal mixed	.	.	.	.	.	.	9
Applications withdrawn	.	.	.	.	.	.	3
Oil engines	.	.	.	.	.	.	2
Gas engine	.	.	.	.	.	.	1
Engine	.	.	.	.	.	.	1
Board of Appeal	.	.	.	.	.	.	1
Duplicate	.	.	.	.	.	.	1
Unsigned	.	.	.	.	.	.	2
Total	.	.	.	.	.	.	331

In order that parties signing to use hard coal may be made to live up to their agreement, frequent visits to the plants are made, as a few cases have been found violating the same.

Plants equipped with devices are also visited with a view of seeing that the same are properly manipulated and not shut off, as all devices are more or less at the mercy of the stoker.

#### SPECIAL REPORTS.

The following special reports have been made from time to time :—

February 6. Report with observations on plant of the F. L. Ames estate, corner Lincoln and Tufts streets.

February 21. Report on complaint against the Bogart Steam Laundry, 205 Florence street, Roslindale.

March 27. Report with observations on plant of Jordan, Marsh & Co., Avon street.

April 14. Report on complaint against Houghton & Dutton, Tremont street.

April 21. Report with observations on plant of Mr. G. D. Hill, 13 Randolph street.

May 4. Report with observations on plant of Shepard, Norwell & Co., Winter street.

May 4. Report of complaint against house chimney attached to L of estate, 22 Kingston street, Charlestown.

June 19. Report with observations on plant of the Boston "Herald," Williams court.

June 22. Report on complaint against Messrs. Krey & Co., 11 Province court.

July 3. Report on complaint against Minot estate, 113 Devonshire street.

August 3. Report on complaint against Merello's bakery, 1260 Washington street.

August 6. Report on complaint against Monks' estate, 35 Congress street.

August 12. Report on complaint against Fox's bakery, corner Edgeworth and Ferrin streets, Charlestown.

September 4. Report on complaint against Alfred Mudge & Son, 24 Franklin street.

September 22. Report on complaint against Roessle and Pfaff's breweries, Pynchon street.

October 1. Report with observations on plant of the Charles A. Millen Company, 28 Beverly street.

October 6. Report with observations on plant of the Hathaway building, 620 Atlantic avenue.

October 8. Report on complaint against the Church Green Electric Lighting Company, Sullivan place.

October 22. Report with observations on the New England building, 180 Summer street.

November 5. Report on complaint against the Homeopathic Hospital, Albany street.

November 10. Report on complaint against the repair shop of the N. Y., N. H. & H. R.R., foot of Sarsfield street.

November 18. Report with observations on plant of Swain, Earle & Co., 67 Commercial street.

November 23. Report on complaint against the Minot estate, J. S. Pushee & Sons, lessees, 9-13 Randolph street.

November 24. Report with observations on plant of the Church Green Electric Lighting Company, Sullivan place.

December 7. Report with observations on plant of the Star brewery, Shirley street.

December 17. Report on complaint against Osgood & Hart, Sherman square, Charlestown.

#### SUMMARY.

The following is a brief summary of the work for the year ending Jan. 31, 1897: —

Number of boiler permits acted upon . . . . .	331
Number agreeing to burn hard coal . . . . .	280
Number adopting smoke devices . . . . .	31
Number of short observations taken . . . . .	285
Number of observations lasting from 5 to 9 hours . . . . .	44
Number of special reports made . . . . .	26

#### GENERAL SUMMARY.

It would be somewhat difficult to indicate by statistics, however carefully gathered, the extent of the work done by this office since its organization in August, 1893, but the following figures are given as possessing public interest: —

Number of boiler plants inspected . . . . .	325
Number found equipped with smoke devices . . . . .	16
Number since equipped . . . . .	59
Number of short observations taken . . . . .	601
Number of observations lasting from 5 to 9 hours . . . . .	108
Number of new boiler permits acted upon . . . . .	549
Number agreeing to burn hard coal . . . . .	449
Number of new boilers equipped with smoke devices . . . . .	62

In addition to the above, a large number of plants are burning hard coal screenings mixed with soft coal, and some to avoid any further trouble preferred to burn hard coal entirely.

Respectfully submitted,

THOMAS F. KELLEY,

*Chief Inspector.*

## APPENDIX J.

## FORMER SUPERINTENDENTS AND DOCUMENT NUMBERS OF ANNUAL REPORTS.

## Bridge Department before 1891.

*Previous to 1886, under charge of City Engineer.*

NAME.	Year.
Bartholomew M. Young . . . . .	1886 to 1889
James H. Nugent . . . . .	1889 to 1891

## Bridge Department before 1891.

NAME OF DOCUMENT.	For Year.	Pub. Year.	No. of Doc.
Annual Report . . . . .	1886	1887	29
" " . . . . .	1887	1888	26
" " . . . . .	1888	1889	29
" " . . . . .	1889	1890	22
" " . . . . .	1890	1891	*

\* Published in Annual Report, Executive Department, Part I., City Document No. 1, 1891.

## Paving Department before 1891.

NAME.	Year.
Enoch Patterson, Supt. Streets and Drains . . . . .	1827 to 1831
Zephaniah Sampson, " " " " . . . . .	1831 to 1846
Thomas Hunting, Superintendent . . . . .	1846 to 1853
Alfred T. Turner, " . . . . .	1853 to 1864
Charles Harris, " . . . . .	1864 to 1883
Nehemiah T. Merritt, " . . . . .	1883
James J. Flynn, " . . . . .	1883
Charles Harris, " . . . . .	1884
Michael Meehan, " . . . . .	1884 to 1886
John W. McDonald, " . . . . .	1886 to 1889
J. Edwin Jones, " . . . . .	1889 to 1891

## Paving Department before 1891.

NAME OF DOCUMENT.	For Year.	Pub. Year.	No. of Doc.
Quarterly Report . . . . .	. . .	1851	6
" " . . . .	. . .	1851	29
Annual Report . . . . .	1851	1852	2
" " . . . .	1852	1853	6
" " . . . .	1853	1854	6
" " . . . .	1854	1855	5
" " . . . .	1855	1856	3
" " . . . .	1856	1857	3
" " . . . .	1857	1858	3
" " . . . .	1858	1859	5
" " . . . .	1859	1860	6
" " . . . .	1860	1861	5
" " . . . .	1861	1862	4
" " . . . .	1862	1863	3
" " . . . .	1863	1864	3
" " . . . .	1864	1865	7
" " . . . .	1865	1866	3
" " . . . .	1866	1867	6
" " . . . .	1867	1868	9
" " . . . .	1868	1869	14
" " . . . .	1869	1870	13
" " . . . .	1870	1871	12
" " . . . .	1871	1872	16
" " . . . .	1872	1873	21
" " . . . .	1873	1874	25
" " . . . .	1874	1875	27
" " . . . .	1875	1876	30
" " . . . .	1876	1877	38
" " . . . .	1877	1878	29
" " . . . .	1878	1879	24
" " . . . .	1879	1880	24
" " . . . .	1880	1881	48
" " . . . .	1881	1882	51
" " . . . .	1882	1883	47
" " . . . .	1883	1884	46
" " . . . .	1884	1885	97
" " . . . .	1885	1886	30
" " . . . .	1886	1887	16
" " . . . .	1887	1888	23
" " . . . .	1888	1889	30
" " . . . .	1889	1890	19
" " . . . .	1890	1891	*

\* Published in Annual Report, Executive Department, Part II., City Document No. I, 1891.

**Sewer Department before 1891.**

NAME.	Year.
Enoch Patterson, Superintendent	1827 to 1831
Zephaniah Sampson "	1831 to 1837
Charles B. Wells "	1837 to 1856
Simeon B. Smith "	1856 to 1863
William H. Bradley "	1863 to 1883
Horace A. Moses "	1883 to 1885
Thomas J. Young "	1885 to 1887
Seth Perkins "	1887 to 1889
Charles Morton "	1889 to 1891

**Sewer Department before 1891.**

NAME OF DOCUMENT.	For Year.	Pub. Year.	No. Doc.
Annual Report . . . . .	1859	1861	11
" " . . . . .	1860	1861	12
" " . . . . .	1861	1862	12
" " . . . . .	1862	1863	13
" " . . . . .	1863	1864	11
" " . . . . .	1864	1865	5
" " . . . . .	1865	1866	6
" " . . . . .	1866	1867	8
" " . . . . .	1867	1868	13
" " . . . . .	1868	1869	11
" " . . . . .	1869	1870	3
" " . . . . .	1870	1871	11
" " . . . . .	1871	1872	10
" " . . . . .	1872	1873	13
" " . . . . .	1873	1874	12
" " . . . . .	1874	1875	17
" " . . . . .	1875	1876	11
" " . . . . .	1876	1877	13
" " . . . . .	1877	1878	15
" " . . . . .	1878	1879	11
" " . . . . .	1879	1880	16
" " . . . . .	1880	1881	19
" " . . . . .	1881	1882	18
" " . . . . .	1882	1883	16
" " . . . . .	1883	1884 }	43
" " . . . . .	1884	1885	
" " . . . . .	1885	1886	58
" " . . . . .	1886	1887	69
" " . . . . .	1887	1888	81
" " . . . . .	1888	1889	129
" " . . . . .	1889	1890	14
" " . . . . .	1890	1891	*

\* Published in Annual Report, Executive Department, Part II., City Document No. 1, 1891.

**Health Department before 1891.***Sanitary.*

NAME.	Year.
Ezra Forristall, Superintendent . . . . .	1853 to 1854
Joseph W. Coburn, " . . . . .	1854 to 1855
Ezra Forristall, " . . . . .	1855 to 1869
George W. Forristall, " . . . . .	1869 to 1890

**Health Department before 1891.***Sanitary.*

NAME OF DOCUMENT.	Year.	Pub. Year.	No. of Doc.
Annual Report . . . . .	1853	1854	7
" " . . . . .	1854	1855	6
" " . . . . .	1855	1856	4
" " . . . . .	1856	1857	4
" " . . . . .	1857	1858	4
" " . . . . .	1858	1859	4
" " . . . . .	1859	1860	5
" " . . . . .	1860	1861	6
" " . . . . .	1861	1862	5
" " . . . . .	1862	1863	5
" " . . . . .	1863	1864	4
" " . . . . .	1864	1865	4
" " . . . . .	1865	1866	8
" " . . . . .	1866	1867	7
" " . . . . .	1867	1868	8
" " . . . . .	1868	1869	12
" " . . . . .	1869	1870	4
" " . . . . .	1870	1871	10
" " . . . . .	1871	1872	17
" " . . . . .	1872	1873	40
Annual Report from 1873 to 1884, inclusive; the Superintendent's report was embodied in the Report of the Board of Health . . . . .	1885	1886	45
Annual Report . . . . .	1886	1887	22
" " . . . . .	1887	1888	16
" " . . . . .	1888	1889	23
" " . . . . .	1889	1890	21
" " . . . . .	1890	1891	*

\* Published in Annual Report, Executive Department, Part II., City Document No. 1, 1891.

**Commissioners of Cambridge Bridges before 1891.**

(West Boston, Canal, and Prison Point.)

NAME.	YEAR.
Frederick W. Lincoln, Commissioner for Boston . . .	{ May 22, 1871, to March, 1891.
Ezra Parmenter, Commissioner for Cambridge . . .	{ June 14, 1871, to Jan. 31, 1883.
William J. Marvin, Commissioner for Cambridge . . .	{ March 28, 1883, to present time.

NOTE.—Harvard Bridge added in 1892.

**Commissioners of Cambridge Bridges before 1891.**

(West Boston, Canal, and Prison Point.)

NAME OF DOCUMENT.	For Year.	Pub. Year.	No. of Doc.
Annual Report . . . . .	1871	1872	19
" " . . . . .	1872	1873	12
" " . . . . .	1873	1874	16
" " . . . . .	1874	1875	23
" " . . . . .	1875	1876	20
" " . . . . .	1876	1877	12
" " . . . . .	1877	1878	10
" " . . . . .	1878	1879	8
" " . . . . .	1879	1880	12
" " . . . . .	1880	1881	8
" " . . . . .	1881	1882	15
" " . . . . .	1882	1883	15
" " . . . . .	1883	1884	19
" " . . . . .	1884	1885	8
" " . . . . .	1885	1886	12
" " . . . . .	1886	1887	19
" " . . . . .	1887	1888	25
" " . . . . .	1888	1889	22
" " . . . . .	1889	1890	20
" " . . . . .	1890	1891	*

\* Published in Annual Report, Executive Department, Part I., City Document No. 1, 1891.

**Ferry Department before 1895.**

NAME.	YEAR.
Board of Ferry Directors . . . . .	1870
William J. Burke, Superintendent . . . . .	1891
Thomas Kellough " . . . . .	May 1, 1895. July 1, 1895.

**Ferry Department before 1895.**

NAME OF DOCUMENT.	For Year.	Pub. Year.	No. of Doc.
Annual Report . . . . .	1870	1871	41
" " . . . . .	1871	1872	55
" " . . . . .	1872	1873	81
" " . . . . .	1873	1874	42
" " . . . . .	1874	1875	65
" " . . . . .	1875	1876	51
" " . . . . .	1876	1877	53
" " . . . . .	1877	1878	49
" " . . . . .	1878	1879	60
" " . . . . .	1879	1880	74
" " . . . . .	1880	1881	77
" " . . . . .	1881	1882	72
" " . . . . .	1882	1883	93
" " . . . . .	1883	1884	76
" " . . . . .	1884	1885	72
" " . . . . .	1885	1886	28
" " . . . . .	1886	1887	12
" " . . . . .	1887	1888	10
" " . . . . .	1888	1889	3
" " . . . . .	1889	1890	4
" " . . . . .	1890	1891	*
" " . . . . .	1891	1892	12
" " . . . . .	1892	1893	11
" " . . . . .	1893	1894	11
" " . . . . .	1894	1895	11

\* Published in Annual Report, Executive Department, Part I., City Document No. 1, 1891.

**Street Department since 1891.***Superintendent.*

Henry H. Carter, Member of American Society Civil Engineers.  
*Resigned Dec. 8, 1894.*

Charles R. Cutter, *Acting Superintendent from Dec. 8, 1894, to Jan. 14, 1895.*  
Member of the Boston Society Civil Engineers.

Bertrand T. Wheeler, *Superintendent from Jan. 14, 1895, to Feb. 4, 1896.*  
Member of the Boston Society Civil Engineers.

Benjamin W. Wells, *Superintendent from Feb. 4, 1896, to the present time.*

*Executive Engineer.*

Henry B. Wood, Member American Society Civil Engineers.

*Engineer of Construction.*

Nathan S. Brock, *from March 1 to June 1, 1896.*  
Member of the Boston Society Civil Engineers.

- BRIDGE DIVISION.**—John A. McLaughlin, *Deputy Superintendent until June 1, 1895.*
- BRIDGE DIVISION.**—John P. Wise, *Deputy Superintendent from June 1, 1895, to Feb. 14, 1896.*
- BRIDGE DIVISION.**—William H. Carberry, *Deputy Superintendent from Feb. 14, 1896, to the present time.*
- FERRY DIVISION.**—Thomas Kellough, *Deputy Superintendent from July 1, 1895, to Feb. 14, 1896.*
- FERRY DIVISION.**—William F. McLellan, *Deputy Superintendent from Feb. 14, 1896, to the present time.*
- PAVING DIVISION.**—Charles R. Cutter, *Deputy Superintendent until Jan. 24, 1895.*
- PAVING DIVISION.**—Darius N. Payson, *Deputy Superintendent from Jan. 24, 1895, to March 1, 1896.*
- PAVING DIVISION.**—John L. Kelley, *Deputy Superintendent from March 1, 1896, to the present time.*
- SANITARY DIVISION.**—George W. Forristall,<sup>1</sup> *Deputy Superintendent.*
- SANITARY DIVISION.**—Philip A. Jackson, *Acting Deputy Superintendent from Jan. 16, 1894, to Feb. 1, 1895.*
- SANITARY DIVISION.**—Charles A. Young, *Deputy Superintendent from Feb. 1, 1895, to March 1, 1896.*
- SANITARY DIVISION.**—Patrick O'Shea, *Deputy Superintendent from March 1, 1896, to the present time.*
- SEWER DIVISION.**—Henry W. Sanborn, *Deputy Superintendent until July 10, 1896.*  
Member Philadelphia Society Civil Engineers.
- SEWER DIVISION.**—Charles R. Cutter, *Deputy Superintendent from July 10, 1896, to the present time.*  
Member of the Boston Society of Civil Engineers.
- STREET CLEANING DIVISION.**—Philip A. Jackson, *Deputy Superintendent until March 22, 1895.*
- STREET CLEANING DIVISION.**—Benjamin M. Cram, *Deputy Superintendent from March 22, 1895, to March 1, 1896.*
- STREET CLEANING DIVISION.**—Joshua Atwood, 3d, *Deputy Superintendent from March 1, 1896, to the present time.*  
Member of the Boston Society of Civil Engineers.
- STREET WATERING DIVISION.**—M. Edwin Libby, *Deputy Superintendent from March 6, 1895, to March 1, 1896.*
- STREET WATERING DIVISION.**—Thomas J. Finneran, *Deputy Superintendent from March 1, 1896, to the present time.*
- BOSTON AND CAMBRIDGE BRIDGES.**—Henry H. Carter, *ex officio, Commissioner for Boston, until Dec. 8, 1894.*  
Charles R. Cutter, *Acting, from Dec. 8, 1894, to Jan. 14, 1895.*  
Bertrand T. Wheeler, *from Jan. 14, 1895, to Feb. 4, 1896.*  
Benjamin W. Wells, *from Feb. 14, 1896, to the present time.*  
William J. Marvin, *Commissioner for Cambridge.*

<sup>1</sup> Died Jan. 12, 1894.

### Street Department.

NAME OF DOCUMENT.	For Year.	Pub. Year.	No. of Doc.
Annual Report, Executive Dept. Part II....	1891	1892	36
" " " " " .....	1892	1893	34
" " " " " .....	1893	1894	34
" " " " " .....	1894	1895	34
" " " " " .....	1895	1896	29
" " " " " .....	1896	1897	29











